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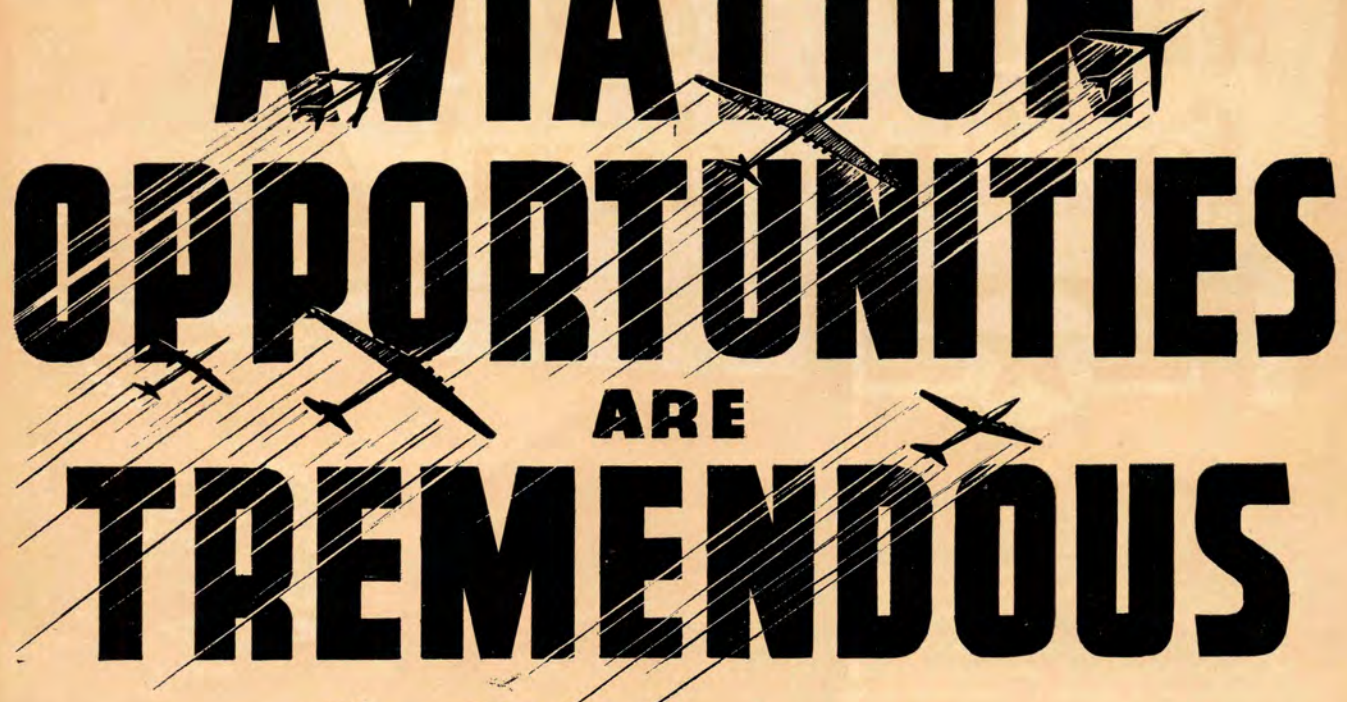

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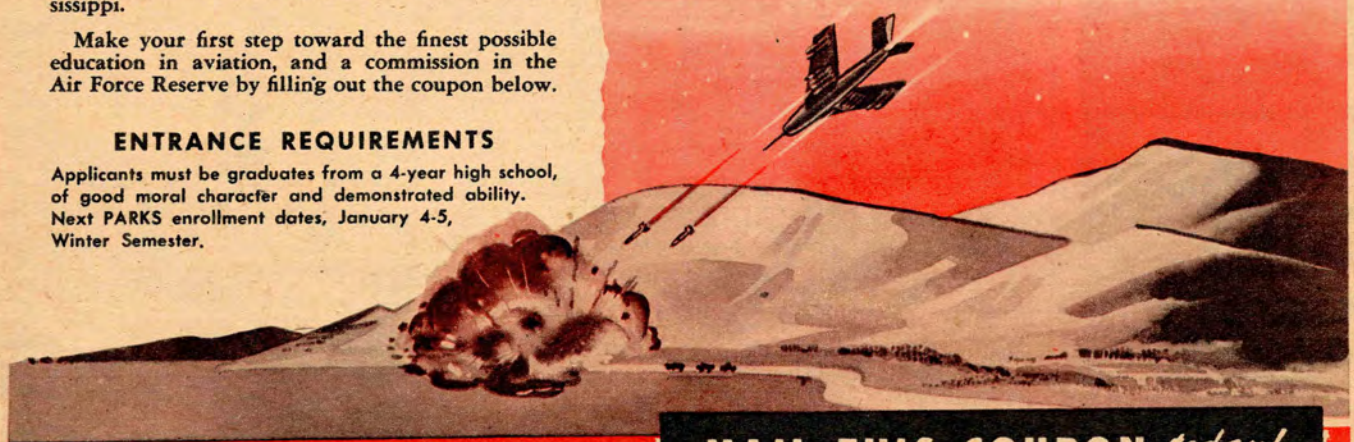

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FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N.Y.

For Invaluable Leadership . . . As modelers and contest flyers, we have all seen unassuming contest directors put on well-run meets and never receive the credit due their efforts. The common attitude when expressing appreciation is one of "let George do it."

Taking matters into my own hands, I want to thank, in behalf of all airmen, one man for his invaluable leadership furthering modeling in the Air Force—USAF Lt. Harry A. Vogler, formerly of Pittsburgh. His services have been as valuable to us as the aid of the Exchange Clubs and the Plymouth Co., in their own way, to the sport as a whole.

I hope Lt. Harry Vogler is able to carry on the fine work he has done in the past.

Cpl. Clarence Agly, San Marcos AFB,Tex.

FW 198 DID Exist! . . . When you informed Mr. Kenneth Hands that the Focke-Wulf FW 198 single-motor twin-boom fighter did not exist, I fully anticipated the numerous letters assuring you that there *was* such a machine. As these letters reinstated the FW 198 as an "airplane of flesh and blood" and refuted the question mark that has hovered around it for the past twelve years, I did not add my say to the matter.

However, upon receiving your latest number I was most amused to see this old argument once more revived by a countryman of mine, A. P. Bishop. This gentleman concludes (indeed *states*) that, as the type number FW 198 was obviously inaccurate (that number being allocated to the Arado Ar 198) the airplane hitherto referred to under that designation *did not exist*. Oh, the old adage of "a little knowledge. . . ."

By now your readers must be *really* confused and I therefore propose to lay this ghost for once and for all, and reveal for the first time the true background of this machine which has been the subject of controversy since the beginning of WW II.

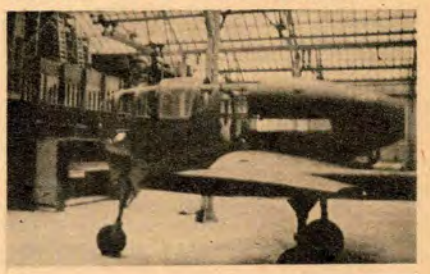
I will tell you why this airplane did not appear in the German *Flugzeug Typenbuch*—it was *not a German airplane*.

The machine was actually the de Schelde S.21, built in 1938 by the *Koninklijke Maatschappij "de Schelde"* at that concern's plant at Flushing, Holland. In order to prove my words beyond any doubt, I am enclosing three photographs of the S.21 taken at Flushing early in 1938 when the machine was under construction.

Powered by a 1,175 hp Daimler Benz DB 601 driving a pusher airscrew and carrying two 20-mm cannon, this airplane was later completed and, I believe, demonstrated at the National Socialist Congress of Nuremburg in September 1938 (as stated by another of your correspondents, Anthony Schmidt) where it evoked considerable interest from the *Luftwaffe*. However, production orders were not forthcoming, although de Schelde were still tinkering about with the prototype when the Germans took over their plant.

Thus, although no machine *carried the designation FW 198*, the machine usually known by this designation *did exist*.

How did it become known as the Focke-Wulf FW 198? Well, before the war Holland's most prolific airplane manufacturer was the Fokker concern. The company's products were known throughout the world and, to the less well-informed at least, all Dutch airplanes were known as "Fokkers." It is not a far cry from "Fokker" to "Focke-Wulf"; indeed, during the early war years, the products of the two companies were frequently confused. Thus, it appears that



Views of de Schelde S.21 taken during construction at Flushing, Holland, plant, 1938

the de Schelde S.21 appeared in certain official archives as a "Fokker", and a certain British aviation journal, a member of whose staff had a glimpse at the official file, published drawings of the airplane. This journal assumed that the manufacturer was not Fokker but Focke-Wulf (the Fokker concern having freely revealed all its projects), but how the airplane later acquired the type number "198" is anybody's guess.

Let us hope that these facts will at last lay the "ghost of the Focke-Wulf FW 198."

William Green, London, England

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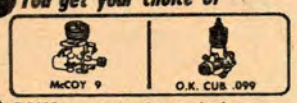

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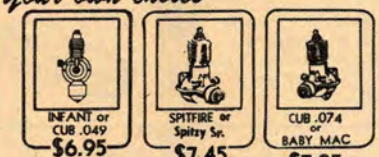

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DUSTER $9.95 — True scale bi-plane u-control model of the type used to crop-dust, stunt and train many pilots. Includes everything including dusting tube, pilot, etc., etc., plus Spitzy Senior engine. Beautifully finished in yellow and blue.

SKIMMER $9.95 — Submerged propeller driven. Every part assembled. Powered by the famous Royal Spitfire .065 engine. Deluxe Model $10.95.

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SPITCRAFT $14.95 — All plastic, authentic in every detail. Beautiful blue hull and white deck. Includes detailed instrument panels, steering wheels, flags, etc., etc. Plus Royal Spitfire engine. 21" long.

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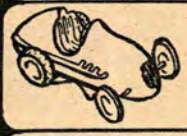

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Q and A

QUESTIONS ON ALL PHASES OF AVIATION AND MODELING WITH ANSWERS SUPPLIED BY AIR TRAILS' BOARD OF EXPERTS

Three-Views from Navy . . . Oh—the power of the press. One fine morning last week I awakened to a mail box stuffed full of letters from model builders all of whom could and did read AT. They wanted something we didn't have—namely, 3-views of the F-85 as promised them in "The Readers Write."

In the interest of helping my people out from under the present piles of requests and in the interest of speeding our small services to your readers, following is a list of what the Navy is willing and able to provide for their model building pleasure:

1. Three-view scale drawings (many of the letter writers misinterpret the words 3 views as pertaining to photos) of the Douglas D558 Skystreak; Douglas AD Skyraider; McDonnell F2H Banshee; North American FJ Fury; Chance Vought F4U Corsair; Chance Vought F6U Pirate; Chance Vought F7U Cutlass; Grumman F8F Bearcat; Grumman F9F Panther.

Lt. Commander John H. Burton, USN, Office of Public Relations, 4C742, Pentagon, Washington, D.C.

How to Get "Jane's" . . . I would like to know where I might obtain a copy of "Jane's All the World's Aircraft," and the price.

Richard Reilman, St. Petersburg, Fla.

• "Jane's All The World Aircraft" is published by McGraw Hill Publishing Co., 330 W. 42nd St., New York, N. Y. The price is in the neighborhood of $20.

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About the MiG . . . Can the Russian MiG easily outdistance pursuing American jets, and can it attain supersonic speeds? Does it have an afterburner, rocket assist, or liquid injection?

I have heard conflicting reports.

W. C. Morrison, Greensburg, Ind.

• The MiG is faster than the F-80 and the F-84, but we understand that the F-86 is somewhat speedier. We do not know whether the MiG 15 can reach sonic speed in level flight, though undoubtedly it can in a dive. No information is available as to the Russian fighter's being equipped with thrust augmentation devices, but it is possible it has water injection.

Production Figures on Mustang . . . Speaking of the P-51 Mustang, how many planes were produced in each of Series A, B, C, D and H? And why the gap between D and H?

Was the twin Mustang F-82 constructed separately, or built from reclaimed 51's? What was the approximate building cost of the 51? Of the 82? Flying cost? Gallons per hour?

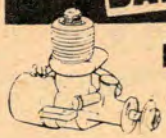
Joseph Wisnewski, Clifton Heights, Pa.

• According to Fahey's "U.S. Army Aircraft," 310 P-51A's were built, 1988 P-51B's, 1750 P-51C's, 7956 D's, and 555 H's. P-51E model designation was not assigned. XP-51F was a lightweight Mustang weighing 2,000 lbs. less than the D; only three were built; this design eventually became the P-51H. The P-51G was the same as the P-51F, except powered by a British-built Rolls-Royce Merlin instead of the Packard-built Rolls of the F; just two were constructed.

The Twin Mustang F-82 is not built from reclaimed 51's. Sorry we do not know the cost of either airplane. Fuel consumption always averages a half pound of fuel per horsepower hour per engine.

(*Continued on page* 79)

A DELUXE A.H.C. BARGAIN COMBO



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5N4

AIR ADVENTURERS CLUB

■ The airport is the place to center Air Adventurers plans. That goes for airplane model clubs outside of A-A as well. Through the years, model groups and full-scale flyers too often have gone their separate ways. Airport operators have not thought much of developing future customers out of the interest that aeromodeling can generate.

Now it may be that your nearest airport manager or flight operator is in the mood for a deal which can mean much to you and to the success of popular aviation in your vicinity.

We are talking here *not* about the airlines, whose possible interest is another story, but about the non-air-carrier enterprises—the bases for the nation's lightplane fleet.

Your typical operator has a few light training planes, bright red or yellow two-seaters for the most part, flying but a few hours a week. He may have a small hangar; a shop where engines or plane fabrics may be repaired; part-time mechanics; and pilots ready to fly as instructors, for local sightseeing, or whatever you like.

You can offer the well-proved evidence of how model activities pay off, not merely in a slow conditioning of young people for future adventures in flight, but in immediate opportunities.

One of the big problems in a local flight service is getting people to visit the airport, which probably means a few miles of driving. A well-run model activity is a sure-fire way.

As national or regional model meets bring tens of thousands of spectators to large airports, a good local meet can bring thousands even to a modest grass airfield serving a typical American community. Local radio and newspaper cooperation usually is not hard to get.

Such a meet, before this season is over, can firmly establish your Air Adventurers Squadron or Group. Airport people in many a place have been astonished to find that models may bring larger crowds than a regular air show, though there may be a point in holding both on the same day.

Short of a public display, and for regular activity through the year, the presence of young modelers at the field can mean business because they all have relatives and friends. An airport can't become a busy place until it begins to look like one.

What you want the airport man to do, of course, is to provide a place where members of your Air Adventurers unit can come to study aviation in the atmosphere of a real flying enterprise.

Perhaps he will let you have bench space in the corner of the shop. As an inducement, you might offer to build neat cabinets where A-A members can store models and materials between their afternoon or week-end visits. You can paint, improve, and tastefully decorate the area or building where your club is allowed to meet.

Another privilege is to fly model aircraft at times and places that offer no possible danger to planes or property.

And you want to be allowed to watch the servicing and flight of airplanes so that you may rapidly gain practical knowledge with a view to flying yourself.

In exchange, your A-A unit first of all must be in responsible hands. Members must believe in signs such as "Authorized Personnel Only." They must be quiet, respectful, and alert. Your A-A unit must be strict in warning or dismissal for those who break these common-sense rules.

In short, if the airport operator—despite the doubts he may first have—finds that your members are well-behaved and that they bring prospective customers to the field, then you're in. If he finds you a nuisance, you're out.

One plan that is good both for the airport and the Air Adventurers members is to secure local donations for flight scholarships, so those who show the greatest interest and proficiency will be taken at least to the point of solo flight.

The local aero club, veterans post, or aviation committee of the Chamber of Commerce may help sponsor such a program. A difficulty which organizations have in holding interest in aviation and air power in a home town is that such things as support of a big Air Force seem remote from the daily lives of the people.

But if, at a (*Continued on page* 70)

AGE LIMITS: There are no minimum or maximum age limitations on Air Adventurers Club membership

MAIL TO: Air Adventurers, c/o Air Trails, 304 East 45th Street, New York 17, N. Y. Print all information required on the application; sign where indicated.

I hereby apply for membership in the Air Adventurers Club and promise to do everything in my power to uphold the principles of the organization and work for the advancement of American aviation. I enclose 25¢ in well wrapped coins for my credentials ☐; 50¢ for credentials *and pin* ☐—(indicate which).

(Name—print) .....

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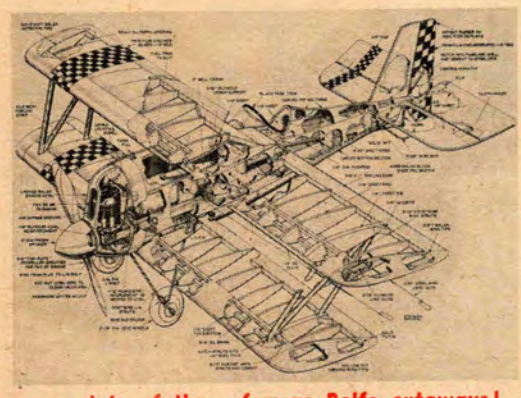
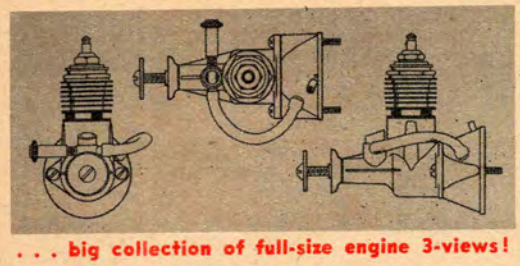
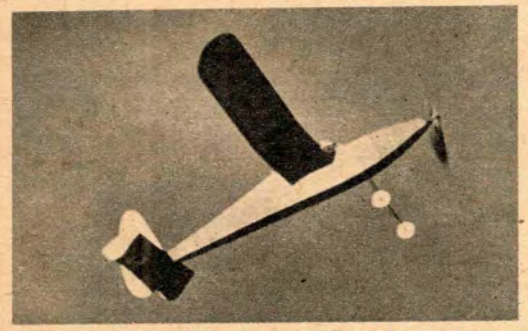
Model Annual
for 1952



. . . lots of those famous Rolfe cutaways!



. . . big collection of full-size engine 3-views!



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OFFICIAL WINNERS

5th International Model Plane Contest

Held in Detroit, Michigan

August, 1951

Another great year for model aviation has just ended. It was a year in which thousands of contestants, Plymouth dealers and others played an important part in hundreds of local and state contests. These contests were climaxed by the Detroit meet, the final results of which are shown here.

The Plymouth Motor Corporation extends its sincere thanks to those who took part in this famous youth activity last year—and looks forward to next August 20-25 in Detroit, when the 6th International Model Plane Contest will be sponsored by Plymouth.

Girls' High Point Trophy is presented to Janyce Marie Wood by J. B. Wagstaff, Vice President & General Sales Manager, De Soto Motor Corporation.

Robert B. Randall is awarded trophy for Team Racing Style and Beauty by J. P. Mansfield, Vice President of Plymouth Motor Corporation.

L. I. Woolson, Vice President of De Soto Motor Corporation, awards Junior High Point Trophy to Richard A. Modler.

H. B. Heberling, Asst. Gen. Sales Mgr. of Plymouth Motor Corporation, presents the Youngest Contestant Trophy to Gregory McCracken, age 3.

PERPETUAL TROPHY WINNERS

High Point Winners — **Points**

Chris A. Hanson (Freshman), Midland, Mich. . . . 28
Fred W. Sage, III (Freshman), Independence, Mo. . 28
Richard A. Modler (Junior), Dayton, Ohio 47
Herbert L. Davis (Senior), Birmingham, Ala. . . . 32
Janyce Marie Wood (High Point Girl), Pittsburg, Calif. 19

Flying Scale — High Point Score — Stinson Trophy
David C. Lefebvre, Seattle, Wash. 312

Stunt — High Point Score — Air Trails Magazine Trophy
George M. Aldrich, Edinburg, Texas 329

Top Speed — Jet — Plymouth International Jet Trophy — **Speed**
Herbert L. Davis, Birmingham, Ala. . . . . 144.29 M.P.H.

Other Top Winners

Team Racing Trophy
Robert M. Mastrovitch, Fords, N. J.

Style and Beauty (Team Racing) Trophy
Robert B. Randall, Edmonton, Alberta, Canada

Sportsmanship Trophy
Donald Boleski, St. Joseph, Mo.

Youngest Contestant Trophy
Gregory McCracken, Milton, W. Va.

Free Flight—Hand Launched Glider

	Place	Flight Time
Freshman	1. Douglas Hinkel, Wauwatosa, Wisc.	201.0 Sec.
	2. Eugene McKechnie, Royal Oak, Mich.	188.0 "
	3. Gary L. McCoy, Des Moines, Iowa	137.2 "
Junior	1. G. Stromberg, San Francisco, Calif.	413.2 Sec.
	2. Herman Andreson, Chicago, Ill.	340.0 "
	3. Gene Huston, San Bernardino, Calif.	318.8 "
Senior	1. Robert Yurkowski, Chicago, Ill.	722.8 Sec.
	2. Ameil Klein, Newark, N. J.	666.6 "
	3. Steven Kavulich, Binghamton, N. Y.	553.8 "

Free Flight Rubber—Unlimited

	Place	Flight Time
Freshman	1. Clifford Gray, N. St. Paul, Minn.	305.2 Sec.
	2. C. A. Hanson, Midland, Mich.	257.0 "
	3. Michael Scuro, Pittsburgh, Pa.	253.6 "
Junior	1. James C. Watson, Ft. Des Moines, Iowa	679.2 Sec.
	2. Barry Robertson, Glendale, Calif.	608.9 "
	3. Gene A. Jackman, Oklahoma City, Okla.	591.6 "
Senior	1. C. M. Redlin, Detroit, Mich.	889.0 Sec.
	2. John Ward, Akron, Ohio	791.6 "
	3. Fred Montbriand, Regina, Sask., Canada	769.2 "

Free Flight Gas—Class ½-A

	Place	Flight Time
Freshman	1. Carolyn Rhines, Nancy Rhines } Manchester, Conn. (Team)	632.4 Sec.
	2. Jerry E. Stone, Jacksonville, Fla.	504.6 "
	3. Douglas Hinkel, Wauwatosa, Wisc.	500.2 "
Junior	1. Raymond Fry, Stow, Ohio	742.2 Sec.
	2. D. E. Nutter, Amarillo, Texas	573.6 "
	3. Richard A. Modler, Dayton, Ohio	567.0 "
Senior	1. Donald Belote, Toledo, Ohio	1185.2 Sec.
	2. Walter H. Glosson, Ft. Smith, Ark.	920.0 "
	3. Jerry Hasselhuhn, Park Ridge, Ill.	797.4 "

Free Flight Gas—Class A

	Place	Flight Time
Junior	1. Joseph F. Ziomek, Detroit, Mich.	827.6 Sec.
	2. Don Pelton, Cincinnati, Ohio	696.6 "
	3. William Schlarb, South Bend, Ind.	644.4 "
Senior	1. Larry Erickson, Omaha, Nebr.	952.6 Sec.
	2. David Weisman, Washington, D. C.	902.4 "
	3. James Stribling, San Lorenzo, Calif.	880.6 "

Free Flight Gas—Class BC

	Place	Flight Time
Junior	1. Don L. Davis, Kansas City, Mo.	1199.7 Sec.
	2. Raymond Weisman, Washington, D. C.	977.9 "
	3. John A. Petranek, Madison, Wisc.	959.3 "
Senior	1. Richard Salzer, Patchogue, L. I., N. Y.	1018.7 Sec.
	2. Jack M. Stuart, El Paso, Texas	893.2 "
	3. Russell Gardner, Baltimore, Md.	871.7 "

Control Line Speed—Class A

	Place	Speed
Freshman	1. Alfred M. Davis, Birmingham, Ala.	112.17 M.P.H.
	2. Richard K. Held, Detroit, Mich.	108.39 "
	3. Thomas P. Tomoser, Kenmore, N. Y.	105.10 "
Junior	1. Richard A. Modler, Dayton, Ohio	114.75 M.P.H.
	2. James Price, Little Rock, Ark.	111.62 "
	3. James N. Todd, Miami, Fla.	111.20 "
Senior	1. Charles LeBoeuf, Dayton, Ohio	121.25 M.P.H.
	2. Mark E. Brown, Sheppard A.F.B., Texas	120.92 "
	3. Adolph J. Stein, E. St. Louis, Ill.	120.76 "

Scene at the Contestants' Banquet where trophies were awarded August 27.

L. L. Colbert, President of Chrysler Corporation, presents trophies to Chris A. Hanson and Fred W. Sage, III, who tied for Freshman High Point Score.

D. S. Eddins, President of Plymouth Motor Corporation, awards Plymouth International Jet Trophy to Herbert L. Davis.

Robert M. Mastrovitch receives Team Racing High Point Trophy from A. H. Paterson, Vice President of Plymouth Motor Corporation.

George M. Aldrich is awarded the Air Trails Stunt Trophy by Al Lewis, Editor of Air Trails Magazine.

Herbert L. Davis receives another award —this time the Senior High Point Trophy—from R. H. Appleman, Asst. Gen. Sales Mgr., Chrysler Sales Div.

Captain P. B. Tuzo, U. S. Navy, congratulates David C. Lefebvre on winning the Stinson Flying Scale Trophy.

Edward Meyers, Dodge-Plymouth Dealer of Glenellyn, Ill., presents Sportsmanship Trophy to Donald Boleski.

Control Line Speed—Class B

	Place	Speed
Junior	1. Richard A. Modler, Dayton, Ohio	127.07 M.P.H.
	2. Roger K. Welden, Rockford, Ill.	118.61 "
	3. Tommy Davis, Atlanta, Ga.	118.14 "
Senior	1. Clifford Telford, Cincinnati, Ohio	130.67 M.P.H.
	2. Jerry Stebbins, Biloxi, Miss.	129.44 "
	3. Mark E. Brown, Sheppard A.F.B., Texas	127.52 "

Control Line Speed—Class CD

	Place	Speed
Junior	1. Richard A. Modler, Dayton, Ohio	143.83 M.P.H.
	2. Roger K. Welden, Rockford, Ill.	137.66 "
	3. Charles E. Heyde, Hackensack, N. J.	135.90 "
Senior	1. Herbert L. Davis, Birmingham, Ala.	148.33 M.P.H.
	2. R. B. Miller, Murray, Ky.	146.16 "
	3. Charles T. Winter, New York, N. Y.	145.57 "

Control Line Jet Speed

	Place	Speed
Junior	1. Thomas Mattingly, Hialeah, Fla.	138.62 M.P.H.
	2. Roger Welden, Rockford, Ill.	134.27 "
	3. David Landis, Columbus, Ohio	131.53 "
Senior	1. Herbert L. Davis, Birmingham, Ala.	144.29 M.P.H.
	2. Jack V. Gouverneur, Chanute A.F.B., Ill.	142.12 "
	3. Colin D. Keys, Royal Oak, Mich.	141.34 "

Flying Scale

	Place	Points
Junior	1. Henry LaVon, Tacoma, Wash.	251
	2. Richard A. Modler, Dayton, Ohio	229
	3. Roger Harney, Berwyn, Ill.	192
Senior	1. David C. Lefebvre, Seattle, Wash.	312
	2. Paul Belvedere, Berwyn, Ill.	303
	3. Joseph P. Pohl, Kitchener, Ont., Canada	243

Control Line—Stunt

	Place	Points
Freshman	1. D. W. Alford, San Diego, Calif.	269
	2. Fred W. Sage, III, Independence, Mo.	264
	3. Robert Leyner, Western Springs, Ill.	231
Junior	1. Gary L. De Vore, Midland, Mich.	282.5
	2. Lloyd W. Curtis, St. James, Minn.	282.0
	3. Gerard Anderer, Philadelphia, Pa.	277.0
Senior	1. George M. Aldrich, Edinburg, Texas	329
	2. Don G. Joslin, Erie, Pa.	309
	3. Harold Price, Hasbrouck Hts., N. J.	308

Control Line Team Racing

Main Event Race

1. Robert M. Mastrovitch, Fords, N. J.
2. Arthur E. Scholl, Gardena, Calif.

Consolation Event Race

1. Henry LaVon, Tacoma, Wash.

Team Beauty

1. Robert B. Randall, Edmonton, Alberta, Canada

Combat—Class AB

	Place	Points
Junior-Senior	1. Gerald Pollauf, Toledo, Ohio	517
	2. Donald Boleski, St. Joseph, Mo.	495
	3. William Davies, Maplewood, N. J.	494

Combat—Class CD

	Place	Points
Junior-Senior	1. Charles W. Mullin, San Antonio, Tex.	490
	2. Lloyd Curtis, St. James, Minn.	484
	3. Richard Miller, Jamestown, N. Y.	471

Navy Carrier Exhibition

	Place	Points
Junior-Senior	1. Valgene Hayworth, Sedalia, Mo.	264
	2. Richard Stenger, Detroit, Mich.	215
	3. James Vickery, Marvin Wright } Ft. Worth, Texas (Team)	189

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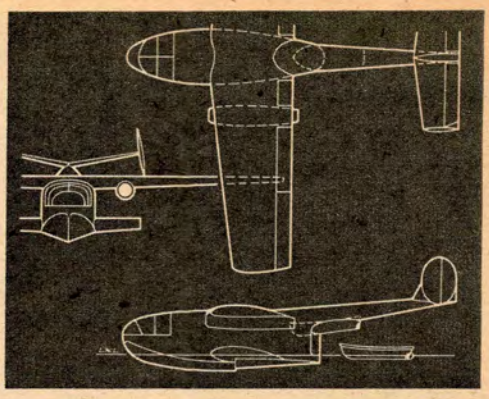
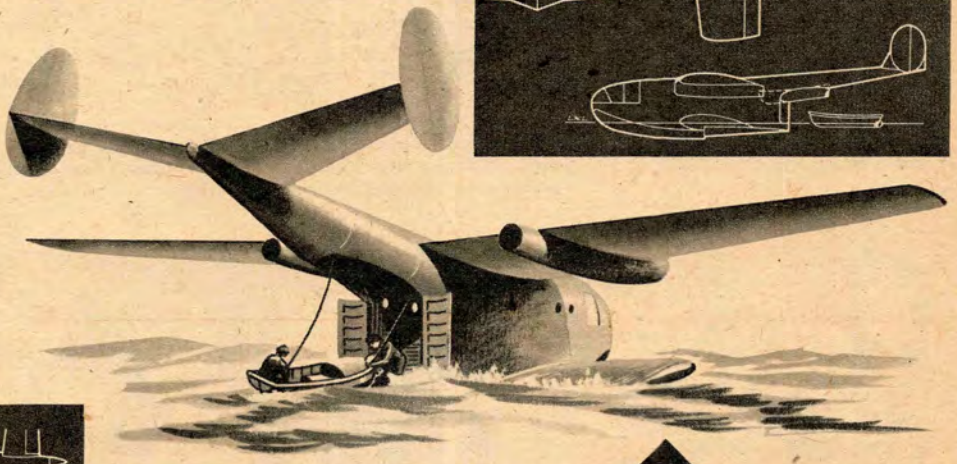
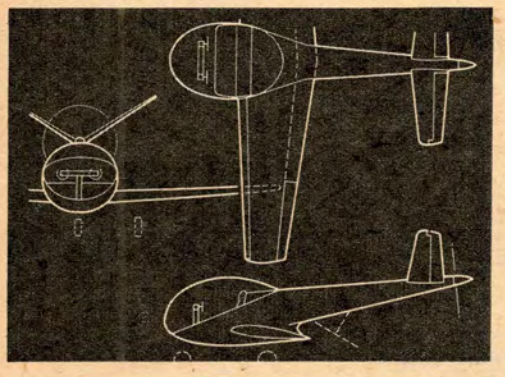
Airmen of Vision
DESIGN COMPETITION

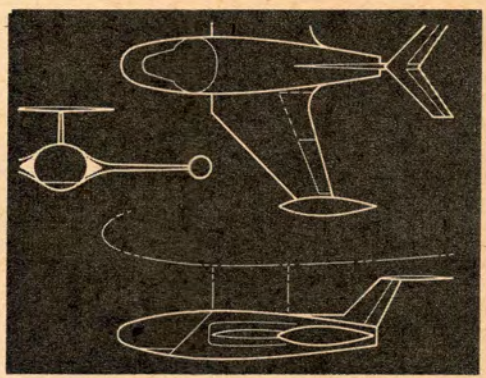


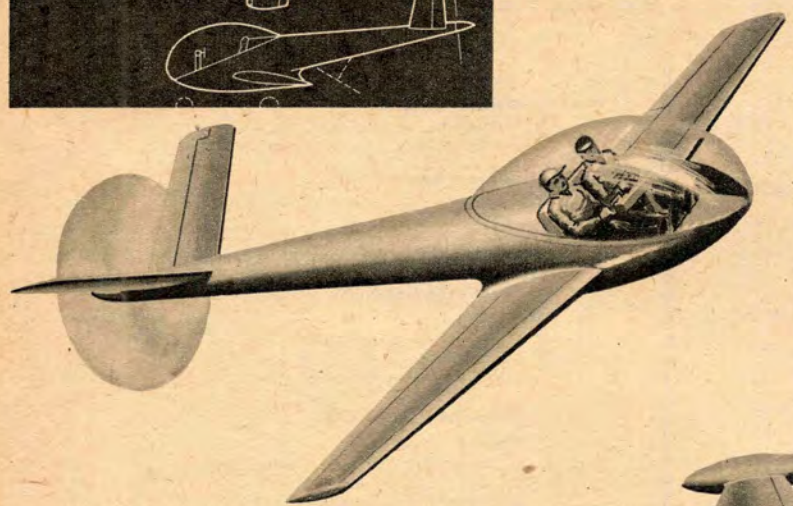
A very unusual personal plane, by William Kubiak of St. Charles, Mo. An extremely clean design with completely sealed aileron and tail gaps to insure minimum drag. Equipped with leading and trailing edge flaps. Powerplant is 185 hp Hermann cam engine driving propeller through an extension shaft. Bubble canopy aids visibility.

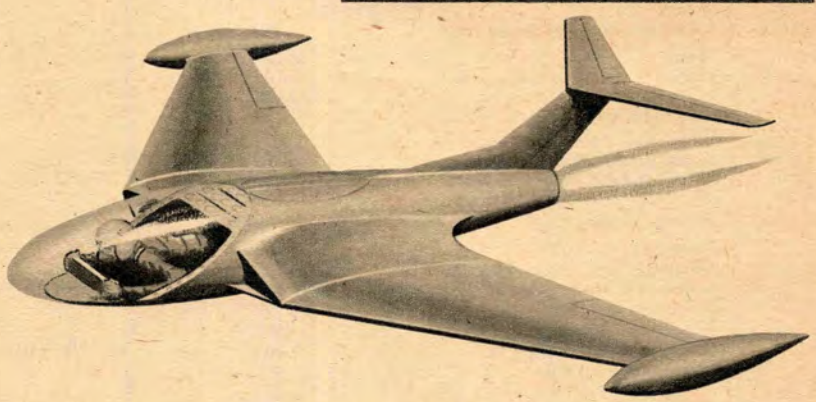


Most imaginative design of month is rescue plane by 15-year-old Frank O'Blak, Jr., of New York City. Has boat attached to boom. Jet engines eliminate propeller danger while performing rescue duty. Inboard stabilizing floats act as gangplank, carry fuel. Wingspan 72 ft.



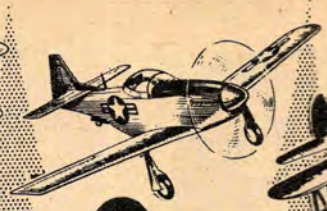


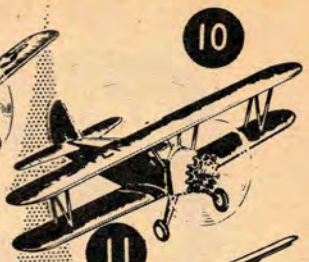


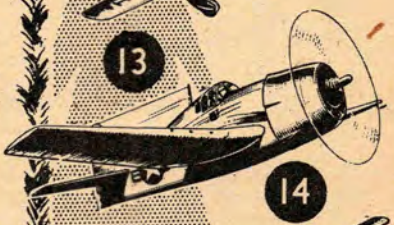


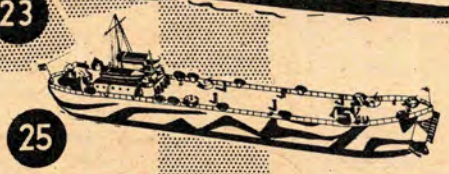
Parasite fighter by James J. Walter of Pullman, Wash. Two can be carried by B-36 type bomber attached to pylons. Pilot lies prone. Nose section jettisonable to permit escape. Two 20 mm cannon. Top speed 600 mph.

Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information on power plant(s), estimated performance, dimensions, and explanations of any usual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and Judges. The designs may be of any type, commercial aircraft, military planes (fighters, bombers, troop transports), planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payments of $5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.









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air notes | AVIATION TODAY AND TOMORROW

AIR TO AIR refueling at night has been successfully performed on a number of occasions by use of radio; latest improvement is installation of traffic light signals on bottom of tanker which read "up", "down" "fwd" and "aft", advising refueling pilot when his plane is out of position. . . . JET ENGINES are approaching reliability of their piston cousins' service life. Time between overhauls of the P&W J-42 Turbowasp has been increased to 1000 hours by Navy from previous 150 hours.

•

AIR SHOW accidents which recently killed spectators moved CAA to ban all aerobatic acts, though special waivers may be issued when applicants demonstrate that such activities will contribute directly to the advancement of, and public confidence in aviation. . . . CARGO UNLOADER helicopter equipped with powerful winch and cargo sling to unload heavy objects to be built by McDonnell Aircraft for Navy. FOUR new Air Defense Identification Zones (ADIZ) which include Montana, North Dakota, part of Michigan and Maine established by CAA.

•

RECOMMENDED to those interested in jet propulsion, "Gas Turbines and Jet Propulsion" by G. Geoffrey Smith. Fifth edition is revised, brought up to date. One of most authoritative books on subject by world-recognized expert. Simply, clearly written, no mathematics. Published by Aircraft Books, Inc., 370 Lexington Ave., New York 17, N. Y. . . . "Skygirl," by Mary F. Murray, is a complete handbook for those interested in becoming airline stewardesses. $3. Published by Duell, Sloane & Pearce, 270 Madison Ave., New York 16, N. Y. . . . The first volume of Walter D. Edmonds' story of the Army Air Forces in the Southwest Pacific, 1941-1942, titled "They Fought with What They Had," is now off the press. $5; Boston: Atlantic-Little, Brown.

•

LOCKHEED will be first to come out with jet passenger transport. Concern has had basic design for craft on boards for several years; approximate cost 2½ million. . . ECONOMICAL beyond belief is Great Britain's new composite powerplant, Napier Nomad, consisting of twelve-cylinder Diesel engine and turbine. Has contra-rotating props, one operated by Diesel, other by turbine. Rated hp is 3000, weight 4000 lbs., fuel consumption 0.36 lbs./hp/hr.

•

LATEST British DH Comets jet airliners will have radar device in nose to project warning picture of approaching storm clouds. . . . PLYMOUTH Division of Chrysler granted contract by Douglas to assemble entire tail section and major wing sections of C-124 Globemaster. . . HUNTERS in distress can utilize services of CAP in State of Washington. State hunting rules detail distress signals which are universally recognized by all pilots.

MARTIN 404, Martin's latest twin-engine transport granted Type Certificate by CAA. Sixty on order for Eastern Airlines. . . . TWO new versions of famous Vought Corsair in production for French Government. Designed as F4U-7 and AU-1. First is high-altitude fighter, other a low-altitude attack plane. . . . ALL AMERICAN AIR MANEUVERS, Miami's annual air carnival to take place in January. Military planes will participate if Miami can succeed in raising funds.

•

BAN on gliding in Germany lifted by Allied Council. Shortly after, in less time that it takes to build, number of motorless craft made appearance on Germany's glider fields. . . . SUPER CONSTELLATIONS to be ordered by Air Force and Navy. AF designation is C-121C, Navy's R70-1.

•

McDONNELL BANSHEES performed well in combat operation on Korean front against ground installations. Operated from aircraft carrier Essex. . . . JET STARTER weighing 75 lbs. packing 380 hp wallop and developed by Bendix Aviation Corp. used on Sapphire jet engines of Republic F-84F Thunderjet.

•

MAJOR JOHN PAUL STAPP of AF subjected self to highest "G" force ever encountered by human being without fatal result, while riding specially constructed rocket propelled sled. Major experienced force of 45 G's without ill results. . . . IN 25 YEARS of flying experience, Captain George Shealy of Delta Air lines logged 20,000 flying hours, representing over 3,000,000 miles —equivalent to 120 trips around earth or six round trips to moon.

•

HILLER HORNET, ramjet powered helicopter, established unofficial altitude record better than 7,500 feet. . . . MiG-15 captured in Korea at Wright-Patterson AFB for evaluation. . . . NATIONAL GUARD Squadrons, at present flying Republic F-47 Thunderbolts, to be equipped with modernized F-51 Mustangs. Eventually entire Air Guard will be flying jet aircraft. . . . GENERAL CARL A. SPAATZ FIELD new name for former Reading, Pa., Municipal Airport.

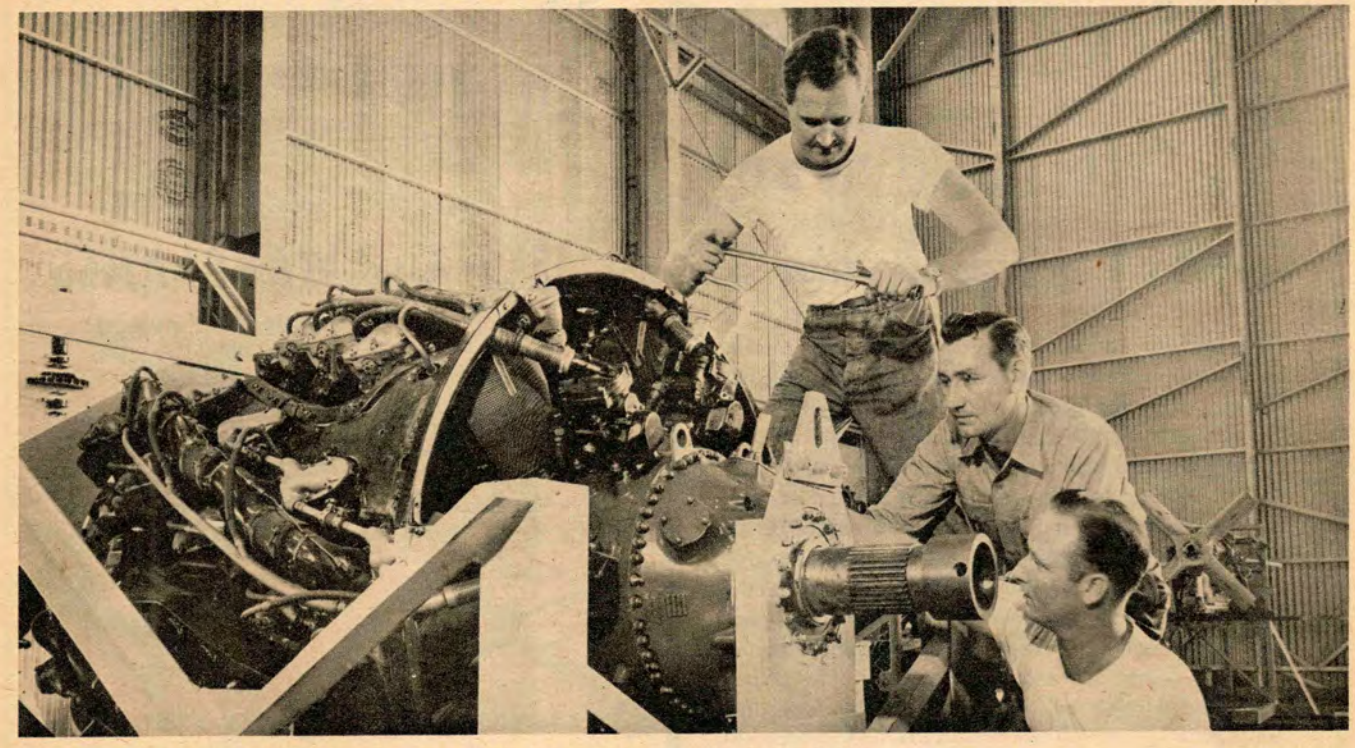
•

MOONEY MITE piloted by Robert C. Faris covered 1,220 miles—Kansas to N. Y.—in 12 hours 5 minutes; may be new world record for lightplanes.

•

DON'T BE SURPRISED if Air Force eventually has 163 Wings against all opposition. Less than that will jeopardize our security. . . . KING BEAVER, enlarged version of de Havilland Beaver, in production in Canada. Carries 14 passengers, powered by Pratt & Whitney 600 hp R-1340 engine. . . GAS TURBINE Oregon, manufactured by Turbomeca Co. of France, developing 140 hp, will be built under license in U. S. by Stratos Division of Fairchild.

HOW TO TAME 3000 HORSES



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25c F13—THUNDERJET

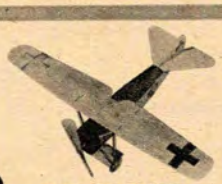
25c F11—MUSTANG

25c F12—MONOCOUPE

$1 M1—TAYLORCRAFT

$1 M2—PIPER CUB

25c F9—GLOBE SWIFT



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Mid-jet Racers

Tiny speedsters powered by jet engines are logical successors to present-day 190 cu. in. midget racers

■ It would seem that the midget racing plane has reached its ultimate in speed, based on present requirements as far as engine power and displacement are concerned. The amazing speed of 199 mph plus by John Paul Jones in *Shoestring* during qualification trials at the National Air Races in Detroit can be topped by little more than a couple of miles with the now classical midget design. What next, then? Recent announcement by the Continental Motors Corp. of acquiring manufacturing rights for small jet engines from the French Turbomeca concern injects new hope for a jet class midget racer pictured on this page. Especially suitable for this purpose is the 330-lb.-thrust Palas. With this type of powerplant the "mid-jet" racer should have no trouble reaching a speed of 300 mph or better. On the following pages we present the latest developments in current 190 cu. in. class ships as seen in Detroit.

FRANK TINSLEY

speed merchants

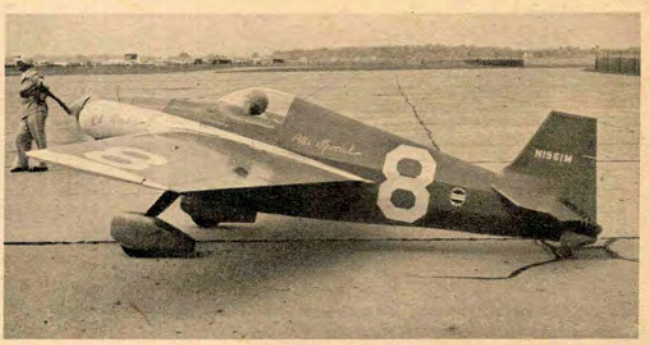
National Air Races at Detroit could truly be termed a major speed event: it was fastest in jets, fastest in mid-jets and superb aerobatics made spectator hearts beat faster

Aerobatic planes waiting for the "go" signal. From right, Caro Bayley's Pitts, Joselyn's Great Lakes and Cole Brothers' Stearmans.

Mirage, Leighnor Special. An old familiar at former air races. Only modification a new set of pants. Was flown by Jack Chastain. Second in 2nd consolation heat at 177 mph.

PAR Special, No. 87. Despite good possibilities, was dogged by faulty engine. Only modification in engine cowling and Fairey left-hand prop. Flown by Art Beckington. Best speed 177 mph.

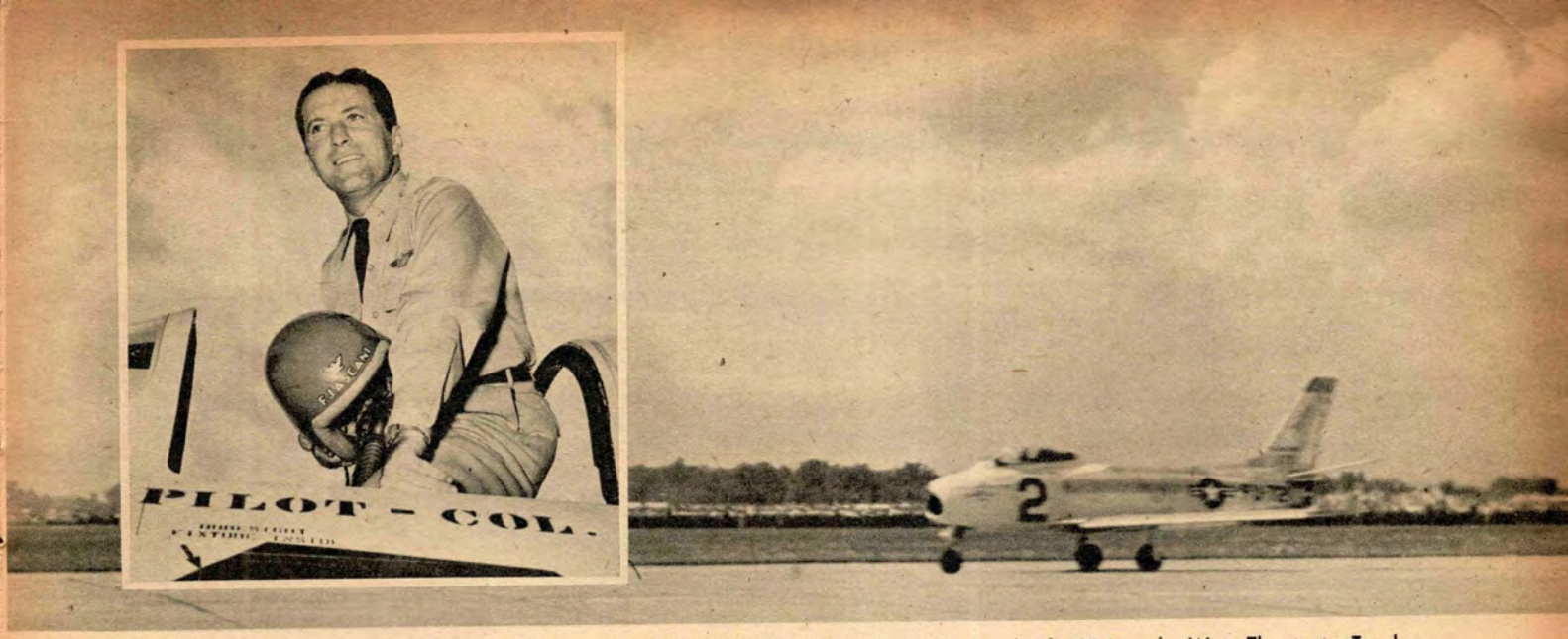
Little Gem, No. 14. Underwent considerable modification, now looks like a Wittman design. Color, gray with red trim. Was flown by builder James Miller. Best speed was 179.7 mph.



Li'l Monster, Pitts Special. Was flown by Bill Brennan. Only change since Miami, use of Sensenich scimitar prop. Color, red and cream. Plane did 191 mph during qualification trials.

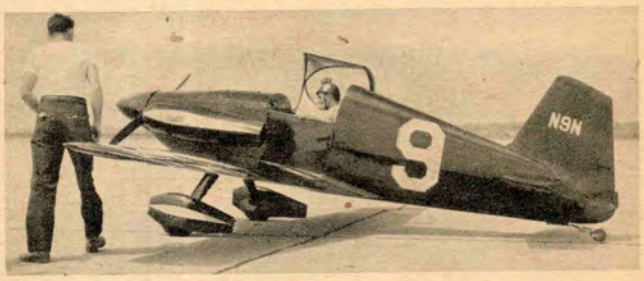
Li'l Rebel. Another old-timer of National Air Races. Did not undergo any changes. Straight Sensenich prop. Color yellow with blue trim. Pilot James Wilson. Best speed was 181.9 mph.

Wittman's famous No. 1, Bonzo, victor of many an air race. No modifications. Qualified at 193.3 mph, but was not fast enough to catch the winner in the finals. Came in second at 192 mph.



Fastest man at the races, Col. Fred J. Ascani established new 100 km. speed record of 635.4 mph. Won Thompson Trophy.

Ballerina, No. 5, one of the famous series of Cosmic Winds racers. Was flown by Bob Drew. Qualified at 189 mph. Cosmic Winds were sold by Le Vier Associates to Pacific Air Races Inc.



Mammy, latest of the Long Midgets. Built and owned by Luther Johnson, owner of the original No. 67. Plane was flown by Kip Mone. Won second qualification heat at a speed of 177.5 mph.

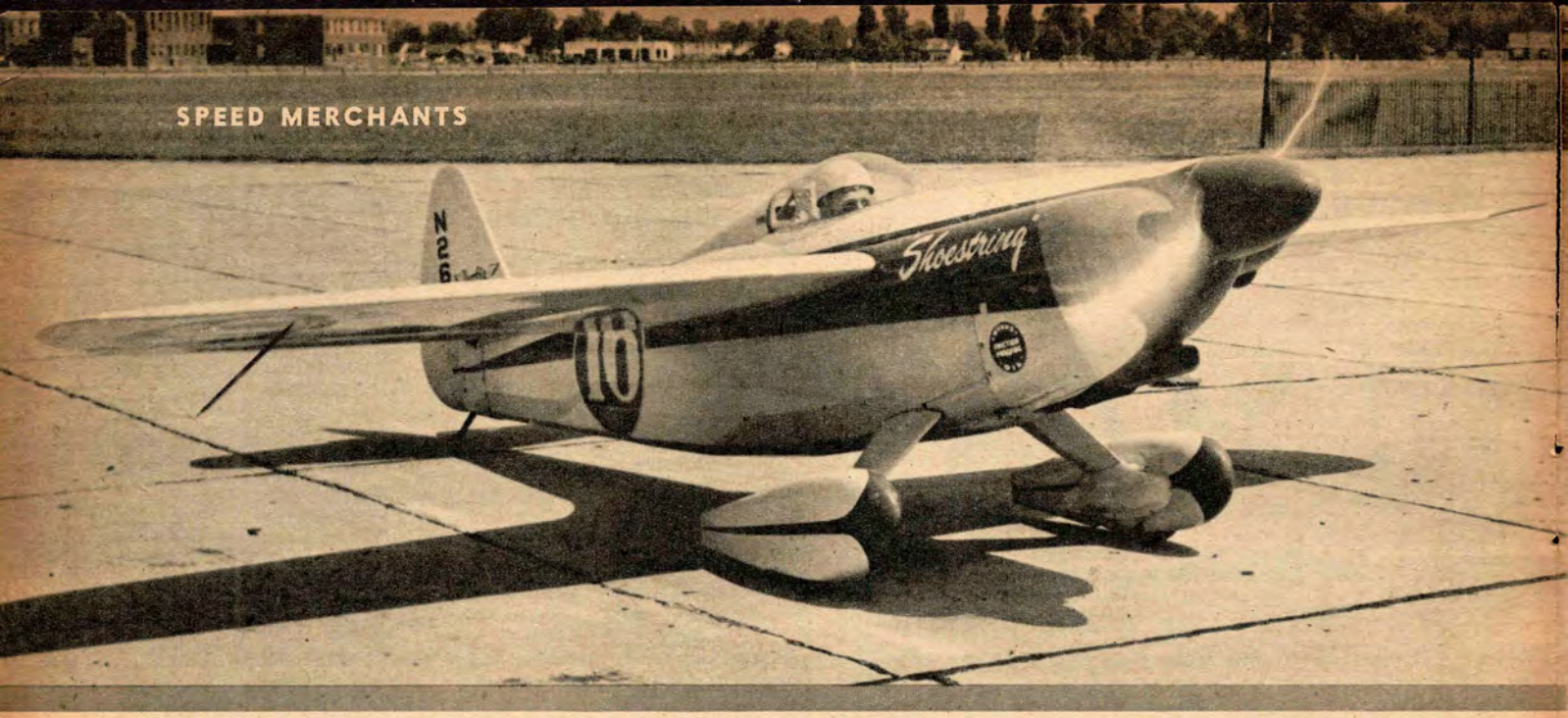
Rivets, No. 92, also an old familiar, but doing very well, had a cleaner cowling, Sensenich scimitar prop. Flown by Bill Falk. Came in fifth in final event. Best speed was 189 mph in first heat.

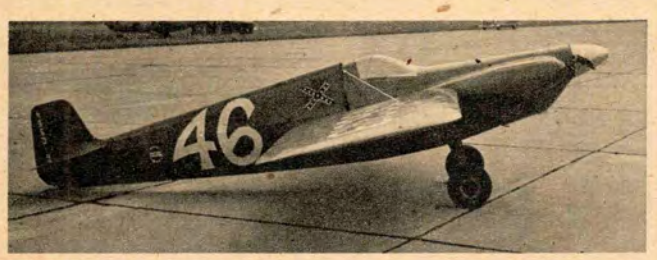
Skeeter, formerly La Jollita. Still owned and flown by Jimmy Kistler. Had a new air scoop, oil tank moved aft and McCauley prop. Color red and white. Qualification speed 181 mph.

The original Long Midget, owned and flown by Luther Johnson. No changes, with the exception that it has new license number N6V. Colors, aluminum with maroon trim. Qualified at 178 mph.

Little Toni. Second of the three Cosmic Winds entered by Pacific Air Races Inc. Was flown by Ed Custer. Color red-maroon, with cream trim. Third in first heat with a speed of 182 mph.

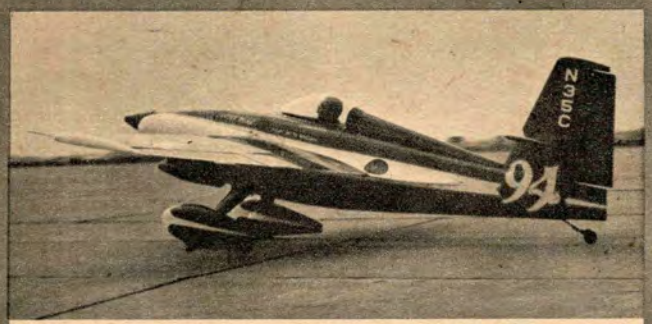
SPEED MERCHANTS

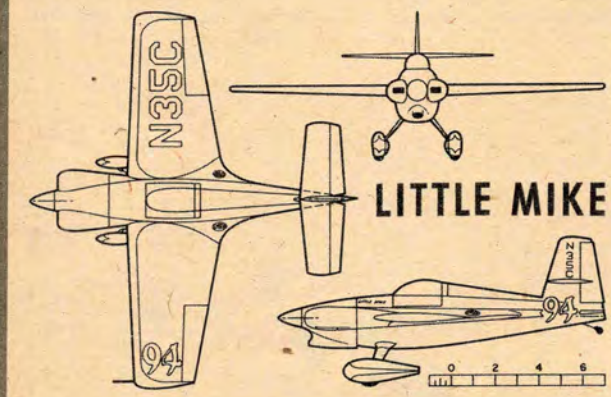




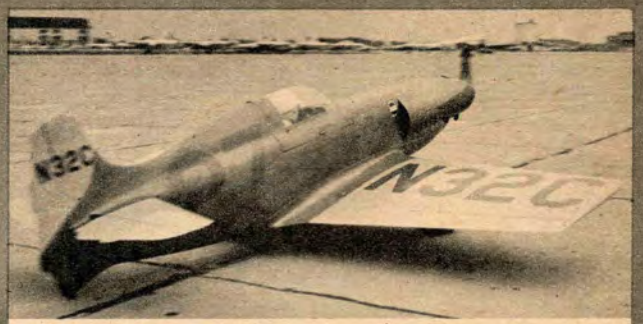
Sistership of Li'l Rebel, No. 46, was painted blue with yellow trim. Flown by Joseph Mangano. Best speed 175 mph.

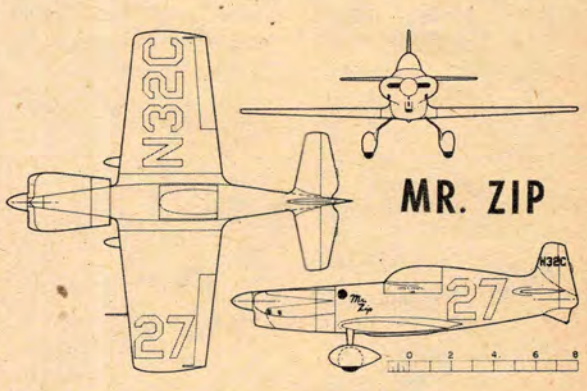
Wittman's old reliable, Buster, which was piloted this year by Robert Porter. Took third place in third heat, with 189 mph.





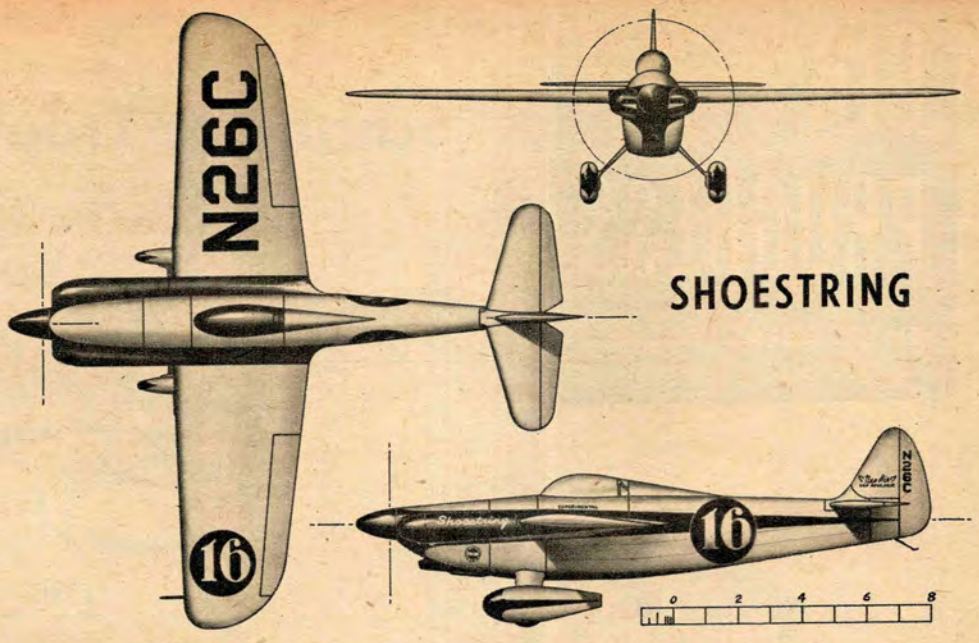
Little Mike, former Ginny, was considerably modified. Shorter wing, new carburetor, scoop, bubble canopy. Color, blue and white, gold piping. Pilot, K. Sorenson.





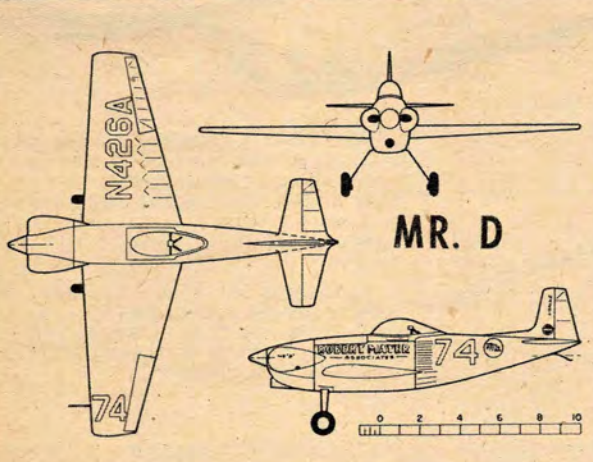
A newcomer, Mr. Zip had fuselage covered with fiber glass. Color, dark and light green. Pilot, Robert Pflieger; builder, Paul Schaupp. Best speed was 176 mph.

Above: The Continental Trophy winning team. On left are designers of Shoestring, Rodney Kreimendahl and Carl Ast; right, pilot John Paul Jones. Plane flew in Cleveland and Miami races, piloted by Bob Downey. Only changes are in carburetor scoop. Best speed was during qualification, 199.7 mph. Plane's red and chartreuse paint had fine finish.

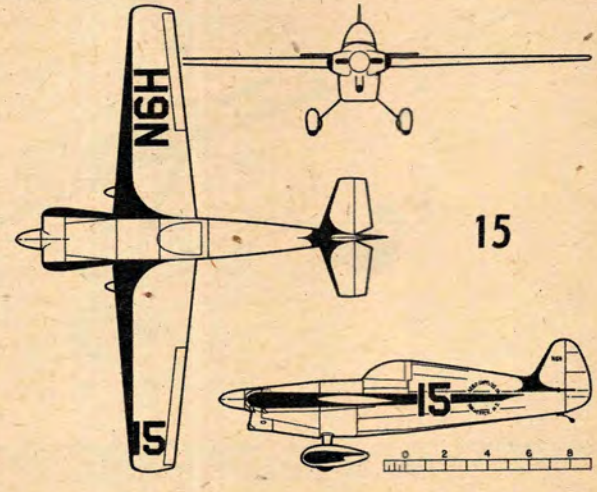


Denight Special. Owned and flown by Wm. "Bart" Denight. Qualified at 189.7 mph. Took second place in second heat.

Another famous racer, the Minnow, now under auspices of Pacific Air Races. Flown by Bob Downey. Ended last in final event.



Another newcomer, designed and built by Robert Mayer Associates, flown by Hank Orlowski. Metallic blue, white numerals, silver lettering. Best speed 160 mph.

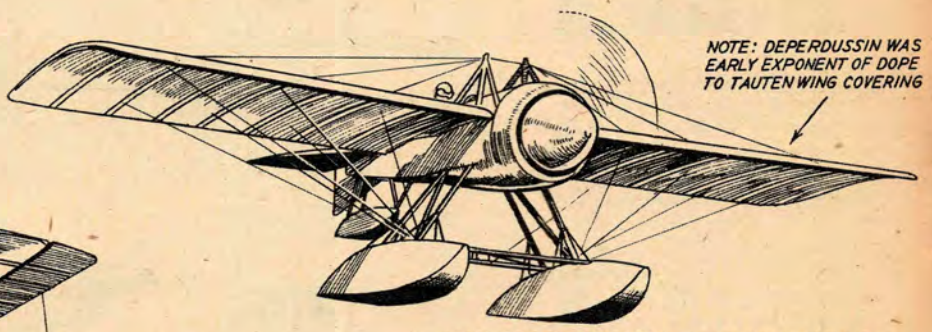


Piloted by Dick Ohm, who flew Dragontail pusher in 1950 Miami air races, No. 15 came in first in the first consolation race. Colors, red and black. Best speed was 177 mph.

AIR PROGRESS

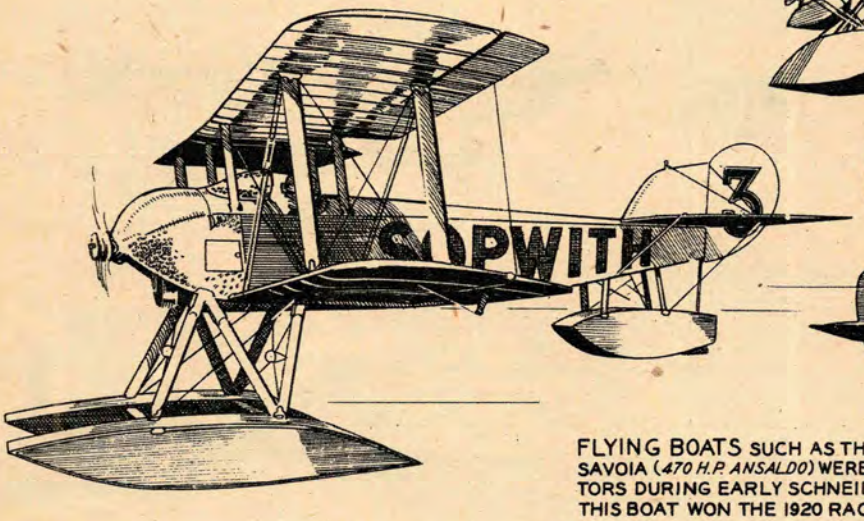
By DOUGLAS ROLFE

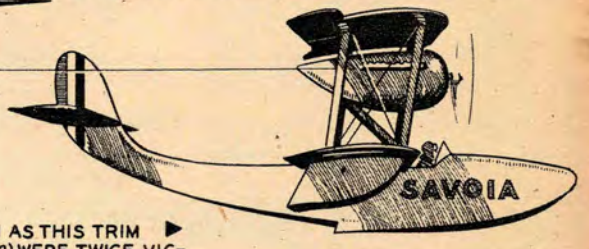
Schneider Trophy Races



NOTE: DEPERDUSSIN WAS EARLY EXPONENT OF DOPE TO TAUTEN WING COVERING

▲ 1913 FIRST WINNER WAS A STANDARD 3-PLACE DEPERDUSSIN (*160 H.P. GNOME*) WHICH WAS USED AS A LAST RESORT WHEN THE 120 M.P.H. DEP. RACER SUFFERED MINOR DAMAGES – WITHDREW

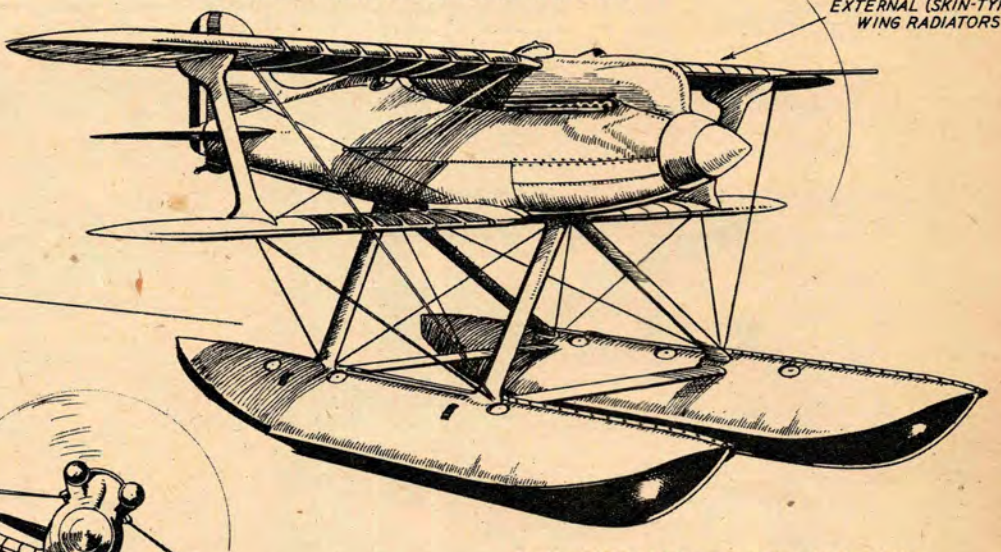


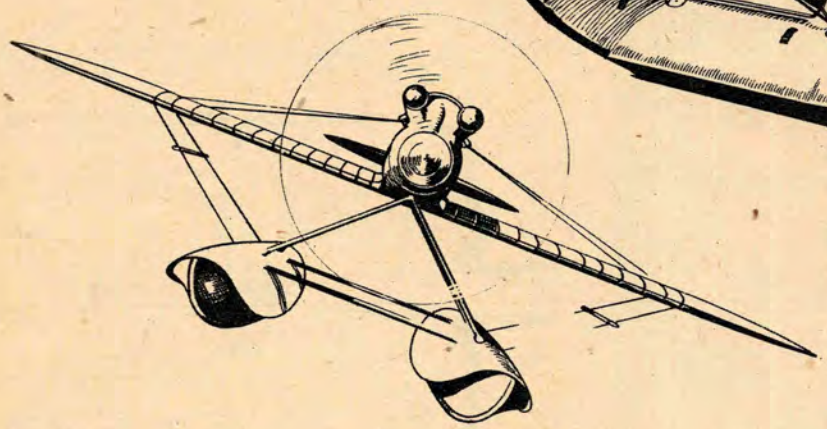


FLYING BOATS SUCH AS THIS TRIM ▶ SAVOIA (*470 H.P. ANSALDO*) WERE TWICE VICTORS DURING EARLY SCHNEIDER RACES. THIS BOAT WON THE 1920 RACE FOR ITALY

1914 WINNER WAS THE TINY ▲ SOPWITH "BABY" (*100 H.P. MONO-GNOME*), AN IMPROVED VERSION OF THE EARLIER "TABLOID" BI-PLANE BUILT BY THIS FIRM. IT AVERAGED NEARLY 90 M.P.H. AND BROUGHT THE CUP TO GT. BRITAIN

EXTERNAL (SKIN-TYPE) WING RADIATORS



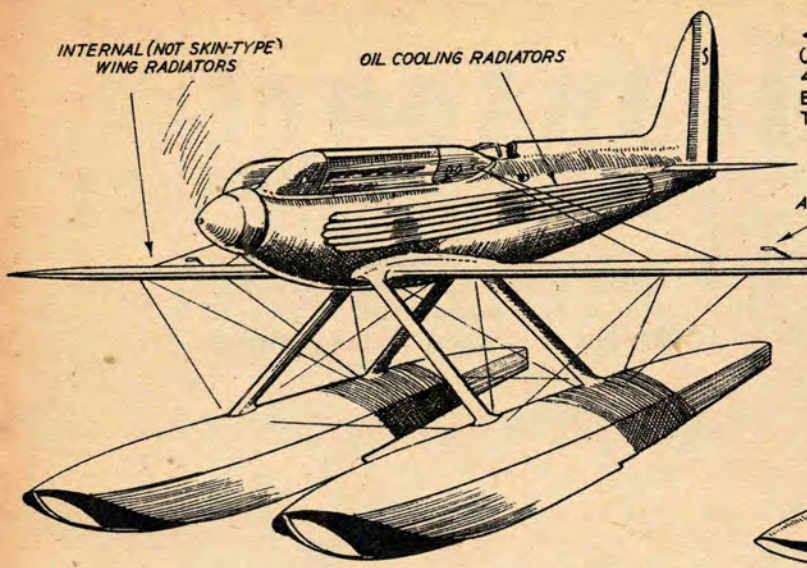


▲ HIGH PEAK IN BIPLANE RACERS WAS REACHED IN THIS CURTISS RACER (*600 H.P. CURTISS*) WHICH CAPTURED THE 1923 CONTEST AT THE THEN REMARKABLE SPEED OF 232 M.P.H. TO GIVE U.S. 2 SUCCESSIVE WINS (*1923 WINNER WAS CURTISS CR-3 BIPLANE*)

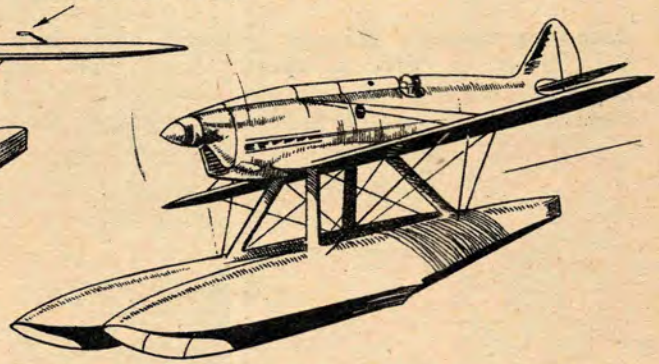
◀ LOW FRONTAL AREA EXTERNALLY-BRACED MONOPLANES WERE INTRODUCED BY THE ITALIAN TEAM IN 1926 WHEN THEY CAPTURED THE CUP WITH THE MACCHI M.39 (*800 H.P. FIAT*) SHOWN HERE.

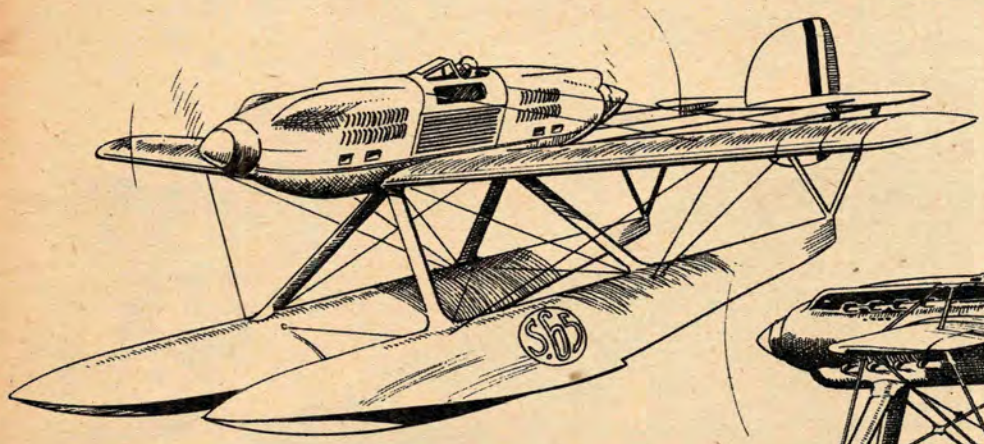
The Jacques Schneider International Maritime Trophy Races were initiated by the founder in December 1912, and first took place in April 1913, with only France and America participating. The entrees were limited to seaplanes of all types, and the entire course was over water and amounted to about 200 land miles with four check points which had to be passed within easy view of the observers.

In the earlier races most of the competition was provided by aircraft manufacturers or private individuals, but as the cost of producing fast racing planes increased these contestants dropped out and national teams sponsored by the individual governments replaced them. First of such teams

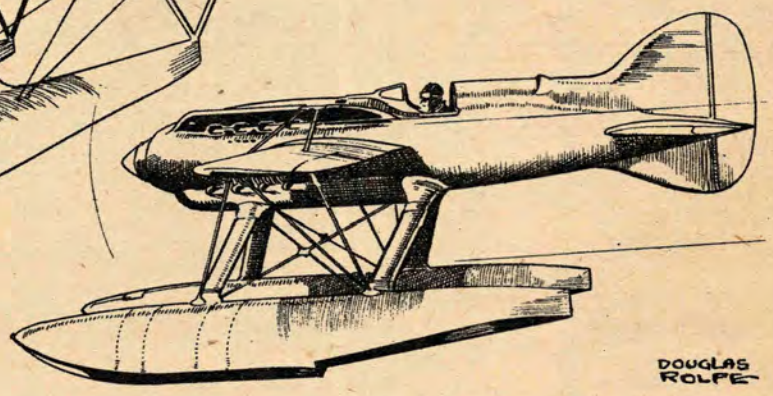


◀ 1931 FINAL WINNER SUPERMARINE S.6B (*2,300 H.P. ROLLS-ROYCE*) UPPED AVERAGE SPEED TO 407.5 M.P.H., WON THE TROPHY OUTRIGHT FOR GT. BRITAIN AND THUS BROUGHT THESE HISTORIC INTERNATIONAL CONTESTS TO THEIR CONCLUSION.



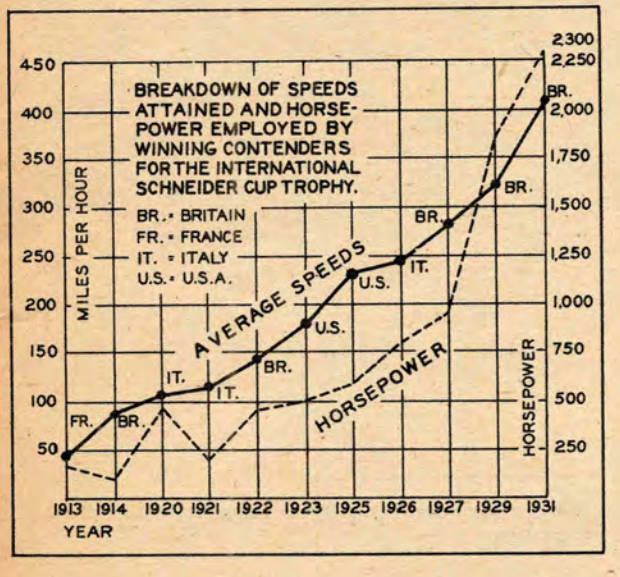


▲ LAST FRENCH CONTENDER FOLLOWED THE SAME GENERAL DESIGN SET BY MACCHI IN 1926. THE DEWOITINE D.H. 41 WAS A 1931 ENTRY—FAILED TO PLACE IN CONTEST



MOST NOVEL CONTESTANT WAS THIS 1929 ITALIAN ▲ ENTRY, A SAVOIA-MARCHETTI (*TWO 1,000 H.P. ENGINES IN TANDEM*). FLOATS APPEAR NEEDLESSLY LONG FOR EFFICIENCY

DOUGLAS ROLFE



▲ FORLORN HOPE WAS AL. WILLIAMS'S SPECIAL MERCURY RACER (*1,250 H.P. X-TYPE PACKARD*)—LAST (*1929*), AND UNSUCCESSFUL, U.S. BID TO RECAPTURE THE TROPHY. IT WAS WILLIAMS'S SECOND TRY.

▲ 1927 WINNER THE 900-1,050 H.P. THREE-BANK NAPIER-SUPERMARINE S.5 AVERAGED 281 M.P.H. TO REGAIN THE TROPHY FOR BRITAIN (*ANOTHER BRITISH ENTRY WAS FASTER BUT DROPPED OUT OF THE RACE IN 4TH. LAP.*)

to compete was that of the U.S. Navy which also was first to bring really high-speed racing into these events. From then on the struggle was largely between the British and the Italians, and when the former won three races in succession the trophy passed automaticallly into permanent possession of Great Britain, and the races came to an end.

The illustrations here show some of the more interesting contestants, winners and losers alike. The Schneider races undoubtedly had an important influence on air progress in general and air speeds in particular. Mounting speeds and engine power induced by the races are graphically depicted in the diagram above.

A-Power Transport

Based on Howard Hughes' gigantic flying boat, the atom-powered airplane is depicted here using as driving energy heat from nuclear fission which operates its hot-air turbines. Work on the development of such a powerplant is now being done by General Electric Co.; Consolidated-Vultee Aircraft Corp. is charged with building the airframe.

View of Hughes "Hercules" cut away to show possible layout of atomic powerplant using air as an operating medium.

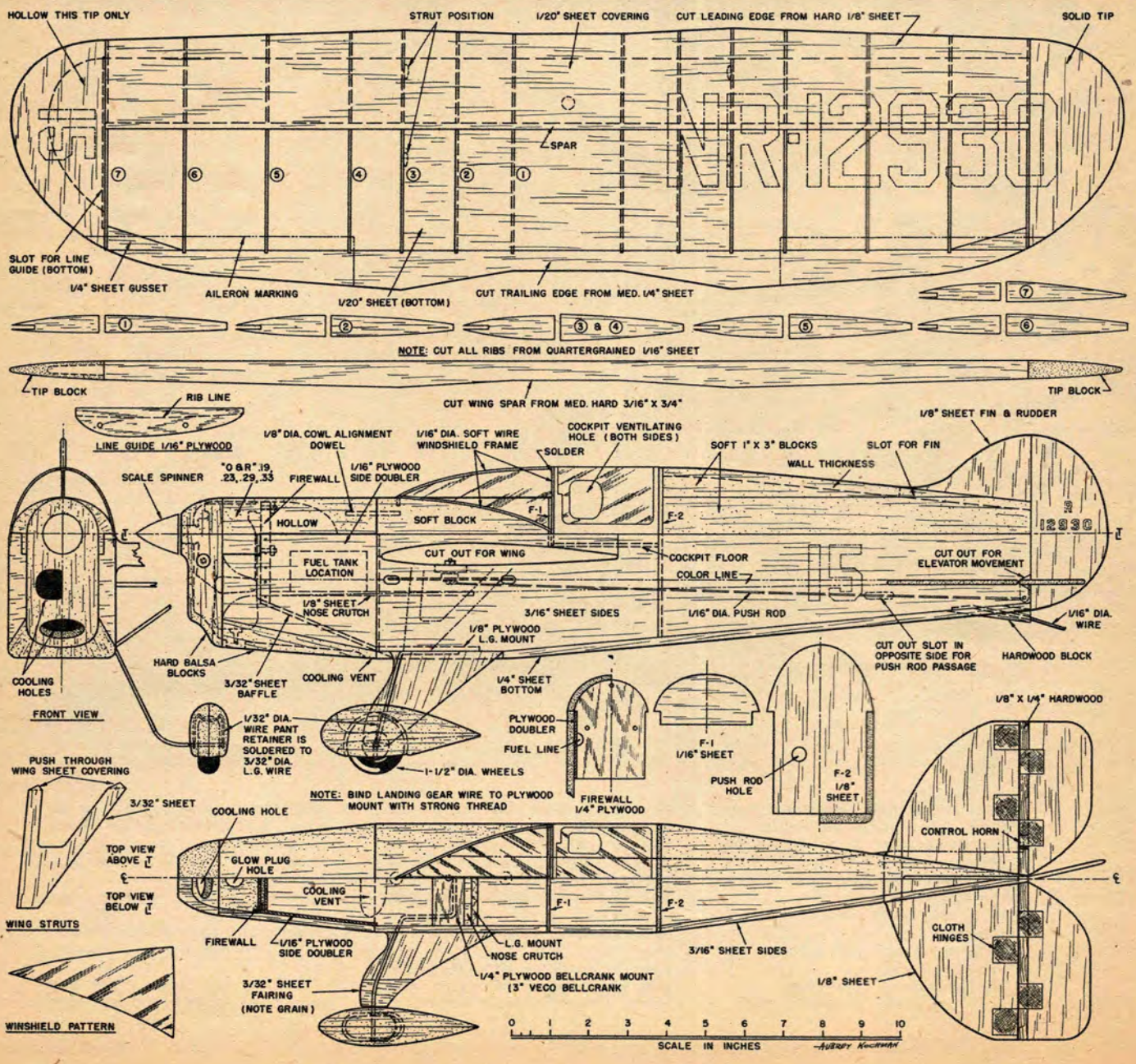
1. Air inlet scoop positioned atop fuselage to avoid spray.
2. Air is conducted forward through U-ducting.
3. Large axial compressor feeds air into heat exchanger.
4. Shielded atomic pile with automatic controls generates heat.
5. Liquid sodium-potassium alloy circulating through zirconium tubes transfers atomic heat to air as it passes through coils of shielded heat exchanger.
6. Hot compressed air actuates turbine which drives compressor, powers pumps, generates current, etc.
7. Heavily insulated pressure ducts pipe hot compressed air to individual powerplants in wings.
8. Waste gate with by-pass to exhaust duct diverts air for throttle control.
9. High-speed turbine drives propellers.
10. Gearing reduces turbine rpm to prop speed.
11. Waste air duct inside leading edge of wing provides thermal anti-icing.
12. Auxiliary jet engine provides heat and power for starting.

Art Chester Racer

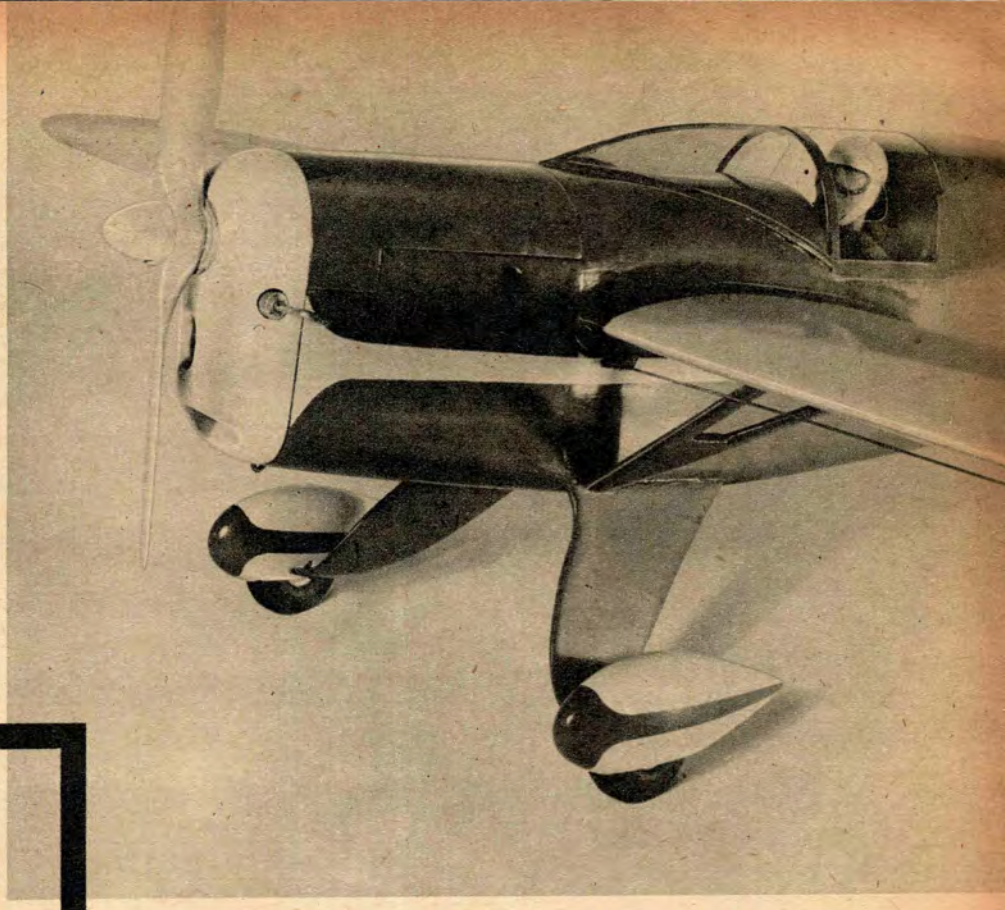
■ One of the most popular racing planes to catch the fancy of the model builders is the *Jeep*. This trim little ship was built back in 1935 and powered by a 375 cu. in. displacement Menasco engine. In its first major test during the 1936 National Air Races at Los Angeles it took second place in the Greve Trophy race with a speed of 230.47 mph.

For team racing it is suggested that the wheels be increased in size to 2" for better take-off and landing characteristics. The plans show the installation of an O&R .19, .23, .29, or .33. Any of these engines will give excellent performance, but the .29 or any other engine of the same displacement is required under the team racing rules.

Due to the rather odd shape, it is necessary that the wing be constructed first. A "D" section type was chosen for its great strength and light weight. Cut out all ribs, leading edge, trailing edge and main spar. Mark rib locations on both sides of spar and construct the "D" section first, including the 1/20" sheet



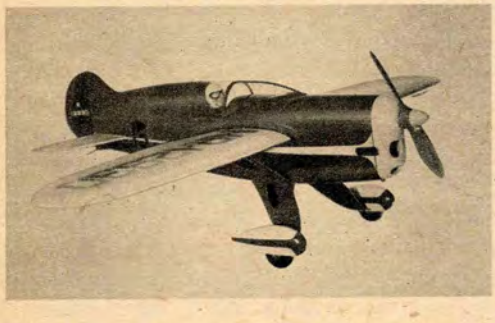
The model as presented here is a "natural" for either scale or team racing competition. If T/R, to gain speed you can eliminate wing struts, landing gear fairing, wheel pants. Include the motor shut-off, "pilot."



An exceptional project, famous Chester "Jeep" racer makes fine U/C flying scale or team racing entry; the pants are removable

By AUBREY "RED" KOCHMAN

Construction is quite simple; if care is taken in selection of wood, a very sturdy yet light model will result. Red's model with O&R .29 weighed in at only 20 oz. As team racer use 1 oz. tank, bend tail skid to fit "stooge."



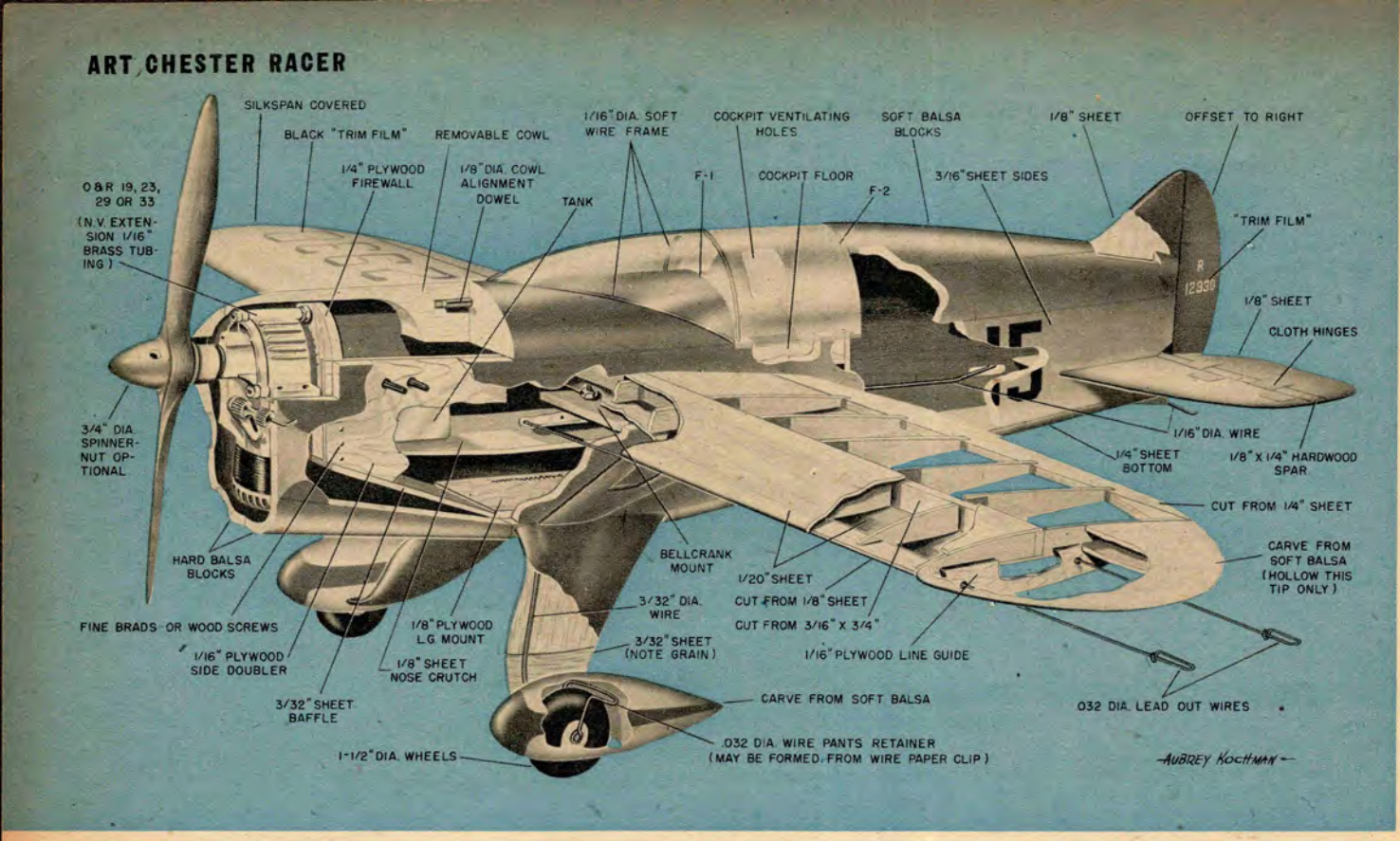
covering on both top and bottom. Cement rear portion of ribs to spar on the marks previously drawn. Add trailing edge, the sheet covering at center section and the tips, making sure to hollow out inboard tip as shown. Sand out any irregularities, especially where sheet covering joins leading edge.

With the wing finished except for covering, we can turn to the fuselage. Cut sides from fairly soft 3/16" sheet and the bottom from ¼" sheet of the same grade wood. Also cut out the two formers, the ¼" plywood firewall and the ⅛" sheet nose crutch. Because of simplicity of construction, all fuselage parts should be cut out very accurately to insure strength and true alignment. Do not depend upon cement to fill the spaces between parts that do not fit properly.

Cut out slot for the wing before beginning assembly. Because of its odd shape, the wing cannot be slipped through the slot. Therefore remove top portion of slot using a fine backsaw or razor blade. This piece will be cemented back after wing is in place. Also cut holes for lead-out wires and slot for the stabilizer. Notice that the sides are parallel at the wing root section back to former F-2.

Mark off this section and cut off the nose section. Score and crack the sides just enough at F-2 so that they may be cemented together at tail. Cement F-2 and nose crutch in place as shown. Cement the plywood side doublers to crutch. Use Weldwood glue and fine brads or wood screws to join firewall to the side doublers. Secure bellcrank to mount, install lead-out wires and pushrod and cement the unit in place.

Cut a small hole in the bottom sheeting of wing center section as indicated on wing plan to clear the bellcrank mounting bolt, and cement wing in place. Replace the side pieces above wing, trimming if necessary to insure a flush top line. Cement nose side pieces to the plywood side doublers. Add bottom sheet except for the piece that fits across at landing



gear fairing. Cement former F-1 in place and also the soft block under windshield.

Using F-1 as a guide, carve block to shape. Spot the rear blocks in place and carve to outside shape using F-2 as a guide. Remove and hollow out. Permanently re-cement in place. Slot the block to receive ⅛" sheet fin and cement the fin in place. Cut stabilizer to outline shape. Cut out the elevators and cement them to hardwood spar.

Bind and cement control horn to spar and join stabilizer and elevators, using cloth hinges. Sand the unit smooth and round off all edges. Cement stabilizer in the slot previously cut in the fuselage sides and hook up the pushrod to control horn. Solder a small washer to the end of the pushrod to prevent any disengagement. Cement the rudder in place, offsetting it to the right to insure tight control lines during windy weather flights.

Bend the 3/32" dia. landing wire to shape and bind and cement it to the ⅛" plywood mount, using strong thread or fine wire. Cement the mount in place. When cement has thoroughly dried, dress bottom sheet firmly against landing gear wire so that an impression is made on the balsa. Cut away just enough of the impression to clear the wire and liberally cement and pin in place. Add the 3/32" sheet baffle and then cut away the bottom sheeting to form cooling vent as shown on the side and top views. Spot-cement the hard balsa lower cowl block in place and carve to outside shape. Remove and hollow as shown. Follow the same procedure for top and front cowl blocks, hollowing these just enough to clear engine.

At this point you may find that the O&R crankcase bolts are too short to pass through the ¼" plywood firewall. If this is the case, substitute O&R .60 crankcase bolts. Temporarily bolt engine in place and cut out all the various openings that are required for its operation and maintenance.

If your *Jeep* is to be flown as scale, landing gear fairing sheets should next be cemented in place. Note direction of the grain. Groove the edge of the wood so that it fits snugly around wire. Dampen the portion to be bent with water to prevent cracking. It might also be wise to silk-cover the entire gear to prevent splitting on hard or rough landings.

The pants may be carved from two or four laminations of scrap balsa, whichever is easier and more convenient. Keep the walls as thick as possible. Bend the pants retainers as shown so that they fit rather tightly in the wheel wells. Paper clip wire works nicely as it can be bent much more easily than music wire and yet is strong enough to do the job.

Slip the wheels in place and mark their exact position on landing gear wire. Remove wheels and solder the inside loop of the retainers to landing gear wire. Replace the wheels and solder the outside loop in place. The position of wheels should be such that the outside loop of the retainer is flush with the end of the landing gear wire.

Fit the pants in place and cut a 3/32" slot on inside of each pant to clear the landing gear wire, and check that the pants when in place do not slip around or fall off by themselves. A little additional bending of the retaining wire will prevent this to a point where the model may be flown with the pants in place without fear of them falling off in flight. They will, however, pop off on hard landings without any damaging effects. Still, it is not recommended that the pants be left on when flying off rough or grassy sites.

Go over the entire model with fine sandpaper. Build up quite a heavy fillet at the wing-fuselage juncture with any good commercial fillet material.

Further finishing details may be found on the full-size plans available.

Mighty FAST Men In College Circles

These modelers bold from Purdue
Fly—don't die—for old "U";
Their models so fast, anchored to mast,
Do 85 M—P—H . . . whew!

By LLOYD HACKMAN & BOB SHULTZ

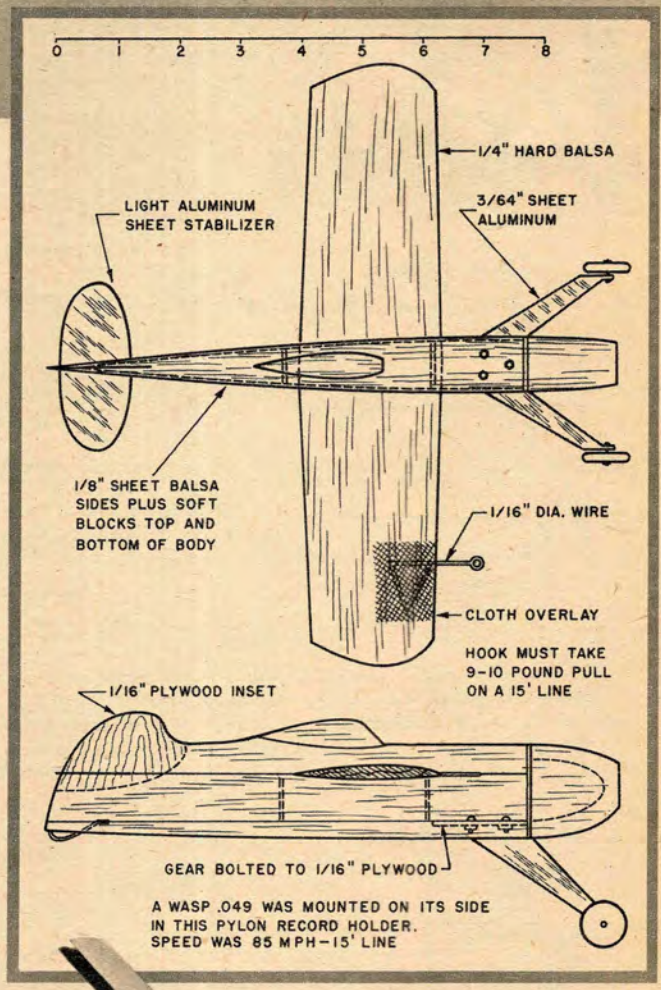
Purdue University student-modelers and pylon set-up.

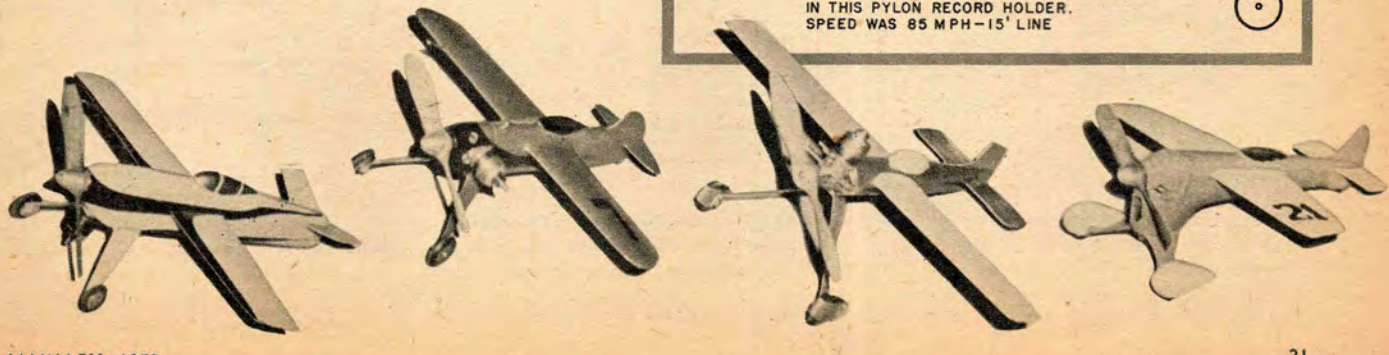
■ Pylon flying in a much more advanced form is available at Purdue University in the Student-Union-sponsored Aeromodelers Club. In the August 1949 issue of Air Trails the story of "Pylon Flying" caught our attention because the Aeromodelers here at Purdue have been flying pylons for three years. We feel that we have improved this type of flying very much during this time. We also have improved upon the plan of pylon flying as given in the previous issue of the magazine.

The work with pylons all started in the fall of 1949, when two boys in the Purdue Aeromodelers Club put a Half-A motor in a small scale model and flew it on a pole. The first models were anything but a roaring success. The main trouble came in getting them off the ground, and when they did fly they had a tendency to oscillate. Nevertheless, these planes aroused a great deal of enthusiasm in the members of the club.

As winter rolled around, the flying site was moved indoors to the Purdue University Armory. More and more of the pylon planes appeared, and speeds up to 55 mph were being turned in. A definite set of rules was soon established to govern pylon flying. The rules of the Purdue Aeromodelers for Pylon Racing are as follows:

All models must have—1. .00 to .049 in. displacement motor. 2. 20 square in. minimum wing span (plan area). 3. Fixed landing gear. 4. Cockpit in proportion to airplane. 5. (*Continued on page* 67)


0 1 2 3 4 5 6 7 8
1/4" HARD BALSA
LIGHT ALUMINUM SHEET STABILIZER
3/64" SHEET ALUMINUM
1/8" SHEET BALSA SIDES PLUS SOFT BLOCKS TOP AND BOTTOM OF BODY
1/16" DIA. WIRE
CLOTH OVERLAY
HOOK MUST TAKE 9-10 POUND PULL ON A 15' LINE
1/16" PLYWOOD INSET
GEAR BOLTED TO 1/16" PLYWOOD
A WASP .049 WAS MOUNTED ON ITS SIDE IN THIS PYLON RECORD HOLDER. SPEED WAS 85 MPH—15' LINE

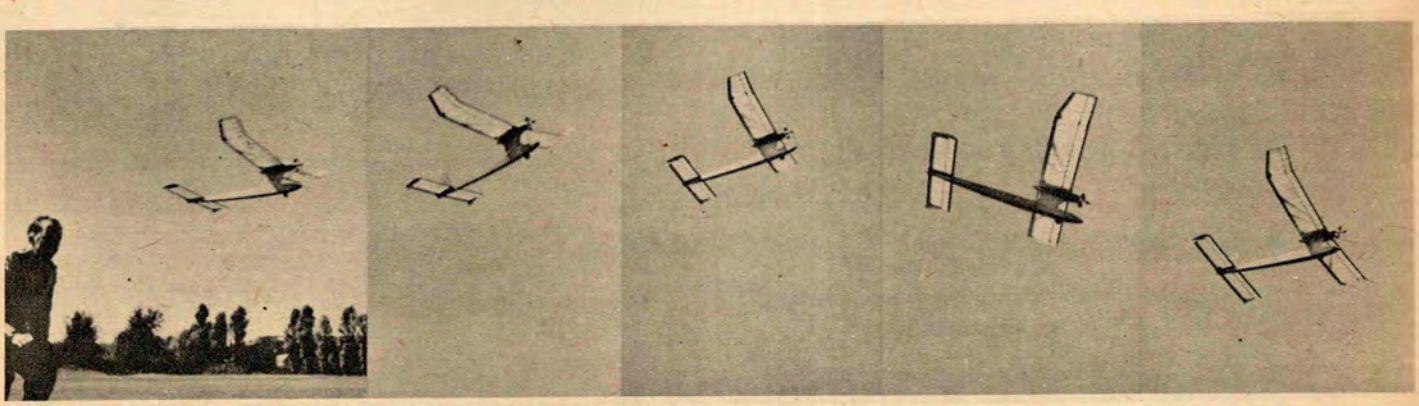


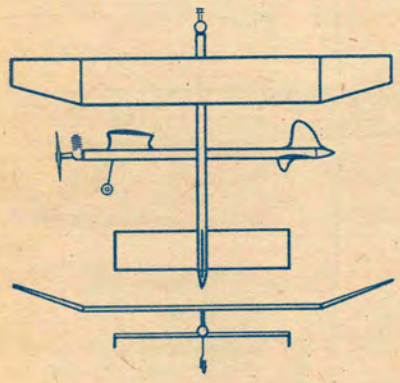
Air Trails Air-Model Design: The Small

■ Of all the models we fly, free flight can be the most unpredictable. The take-off or launch may be perfect, but a few seconds later the model may be looping or spiral diving. And all this may happen after we have had a dozen perfect flights. Is it any wonder that so many free flight model builders are searching for a dependable design?

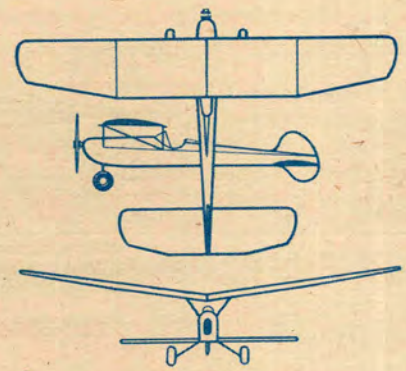
All sorts of theories have been tried. Yet no one can claim that he has discovered the perfect formula. When all is said and done, a good knowledge of adjusting procedure is still the prime requisite for consistent flying and winning of prizes.

In designing free flight models, there is no end to the number of possible combinations with which to experiment. We can have a low, mid or high wing in combination with all sorts of C.G. positions. We can have the thrust line above, through or be-

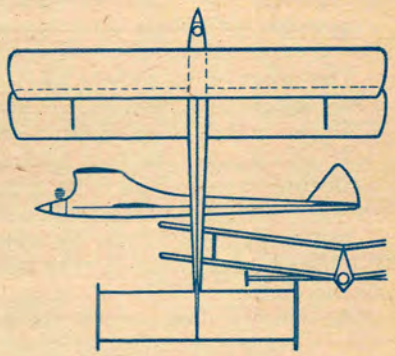




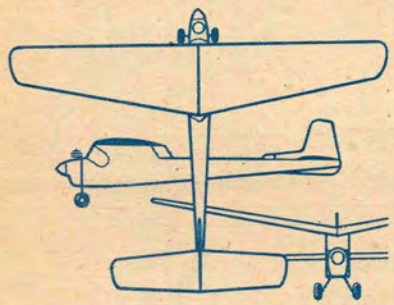
C. (is that Clarence?) Wells, Croydon, Pa., submitted pencil bomber for Wasp. Span 45 in., chord at center 5.5 in.; stab 21 x 5.5 in. Fuselage 1/16 in. sheet rolled to 1 in. dia. Wing at 3.5, stab at 0 deg.



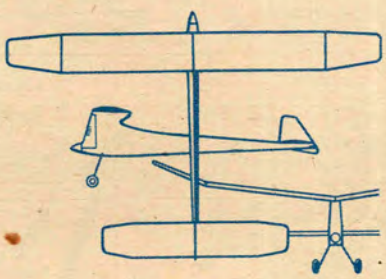
200 sq. in. area job by R. W. Davenport, Dunellen, N. J. Built for sport, turned out to be real contest type. Uses Wasp; settings are 3 deg. on wing, 1 deg. on stab; 7 oz. 74 sq. in. stab; 6% Clark Y modified.



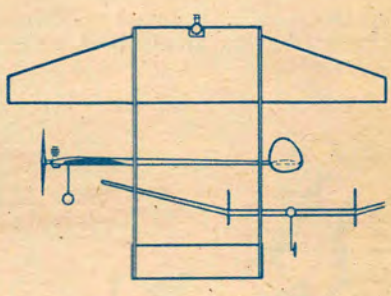
"Bi-Baby" was originally a CO_2 design by Harris Hyman, Margate, N. J. (lot of Eastern winners—wot gives with you Westerners?). 0-0 settings; 9% airfoil with pointed leading edge and flat bottom.



Pleasing lines distinguish entry by William J. Dietz, Jr., Englewood, N. J. Sheet balsa fuselage, Wasp, Trexler air wheels. Span 35"; chord at center 7". Eyedropper tank. Sheet rudder; spar & tissue wing and stabilizer.



Another good looker, by Gary Witt, Mankato, Minn. Clark Y wing and stab; 50 in. span; sheet balsa fuselage, 1/16" wing at 2.5°; stab at .5°. Uses Cub .074 engine, can use twin floats. Stab 27 in.; wing chord 5 in.



Lifting fuselage design from Robert Miller, Sheridan, Wyo. For Cub .049; span 36 in.; chord at center 7 in. Wing area 180 sq. in. Wing sections: center panel, 10% Eiffel 400, outer panels Clark Y, sharp leading edge.

Free Flight

"What's New?" you ask—well, for the free flight fan here's a new approach

Top place design in this month's competition is Donald A. Hambly's "Do'No" ("don't know whether she'll fly or not!"). Don (Ontario) did some real research work. The AT design team built model, report they do know now—it's a dream.

low the C.G. in combination with side areas below, above, behind and in front of the C.G. And to make it more interesting (and confusing), when we do get a model that behaves exceptionally well, we may not know *why*. Or we may attribute its excellent flying characteristics to the wrong item. We may give the credit to the higher pylon, when it may actually be due to the particular position of the C.G.

In view of this design situation, this month's winner, Donald A. Hambly, of Oshawa, Ontario, presents an interesting project: the effect of thrust line about the C.G. Besides its high thrust line the winner also features "prop saver" construction. On landing, the front of the low fuselage will come in contact with the ground ahead of the prop, thus saving it from breaking. Before we go into details on this model, let us review the subject of thrust line and its effect on flight characteristics.

Normally, standard free flight models have the thrust line below the C.G. (caused by wing set on a high pylon). Also, many models have looping, spiral climbing or diving characteristics. Such performances seem to indicate that the thrust line of the C.G. is the cause of looping or spiraling. This "instability" is usually corrected with downthrust. The trouble with this "correction" is that in some cases excessive downthrust is required if complete control of looping or spiral is desired.

The exact thrust setting depends on the position of the C.G. in relation to the chord of the wing. If the C.G. is near the 50% point of the chord, exceptionally large downthrust will be required to cure looping or spiraling. Some of the European designs, which have the C.G. forward, may use as much as 20 degrees downthrust. On other hand, if the C.G. is on or near trailing edge, practically no downthrust is required.

Please notice that the above position of the C.G. was based on the chord of the wing, and not on the thrust line. We use the thrust line above or below the C.G. to balance the model during power flight.

A handy rule to follow when in doubt about thrust line position is: The thrust line position in relation to the C.G. will depend on the position of the C.G. with respect to the wing's chord. If the C.G. is on the trailing edge, the thrust line can be below the C.G. But as the C.G. is moved toward the leading edge, the thrust line should be positioned so that it passes through and over the C.G.

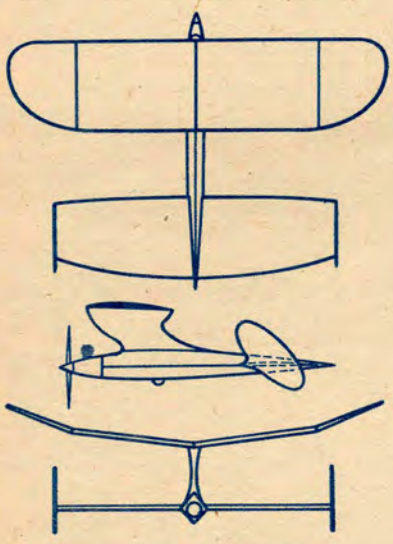
Just where should the C.G. and thrust line be placed for best results? That is a question many of us would like answered. We know that when the C.G. is on the trailing edge, the model has a very touchy personality, and can only be handled by the "expert." A beginner will find it most difficult making such a model behave.

We also know that when the C.G. is at 50%, the model can be easily adjusted and will give excellent glide stability, but it will also have looping or spiral trouble. So, pick your choice and be ready to use downthrust if you want an easy model to adjust for glide and thermals.

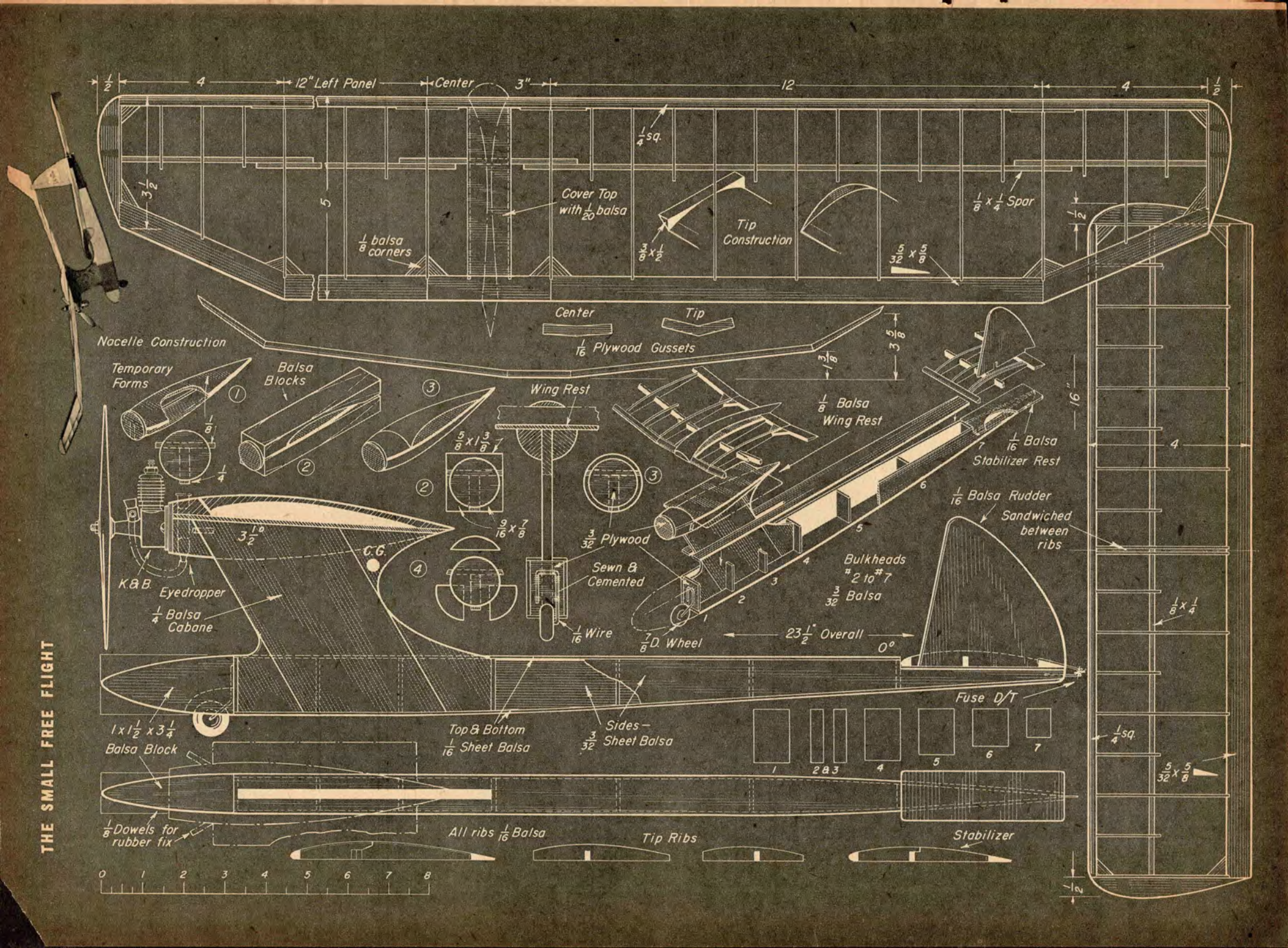
Let us assume that we have a model which has C.G. at about 80% as shown on the winning model. This C.G. position required about 3½ deg. wing setting and also a bit of negative stab to obtain a slow glide. If we were to use this layout on a normal, engine-in-front-of-fuselage model, the C.G. would be about 1" above the thrust line.

Also, we would have looping or spiral climb flight characteristics. To correct for this, we would use downthrust. To have the thrust line pass through the C.G., we would have to use about 12 deg. downthrust if the engine was 5" from the C.G. Actually, we might have to use even more downthrust than this if the model was high powered. Seems like an awkward situation, using so much downthrust.

By having the engine mounted high as on this model, the thrust line is above the C.G. without using "down- (*Continued on page 60*)



Steve Ditta, Bronx, N. Y., suggests stubby Delanne-like duo-mono of 24-in. wingspan for powering with Wasp. Design has merit but adjustment found to be very critical; takes patience, sound modeling background.


THE SMALL FREE FLIGHT
1/2
4
12" Left Panel
Center
3"
12
4
1/2
1/4 sq.
3 1/2
5
Cover Top with 1/20 balsa
1/8 balsa corners
3/8 x 1/2
Tip Construction
3/32 x 5/8
1/8 x 1/4 Spar
1/2
Nacelle Construction
Temporary Forms
Balsa Blocks
Center
Tip
1/16 Plywood Gussets
3 5/8
3 1/8
Wing Rest
1/8 Balsa Wing Rest
16"
1/16 Balsa Stabilizer Rest
5/8 x 1 3/8
1/8
1/4
9/16 x 7/8
3/32 Plywood
Sewn & Cemented
1/16 Balsa Rudder
Sandwiched between ribs
3 1/2°
C.G.
K & B.
Eyedropper
1/4 Balsa Cabane
1/16 Wire
7/8 D. Wheel
23 1/2" Overall
0°
Bulkheads #2 to #7
3/32 Balsa
1/8 x 1/4
Fuse D/T
1 x 1 1/2 x 3 1/4
Balsa Block
Top & Bottom 1/16 Sheet Balsa
Sides — 3/32 Sheet Balsa
1/4 sq.
3/32 x 5/8
1/8 Dowels for rubber fix
All ribs 1/16 Balsa
Tip Ribs
Stabilizer
0 1 2 3 4 5 6 7 8
1/2

Top honors at Dallas . . .
First place at Detroit . . .
National jet speed record job . . .
Here is a Dyna-Jet speedster that flew 150 mph on its first hop! With much pride "AT" presents . . .

Herb Davis' Hot Canary

A real "hot" contender in the speed circles is 17-year-old Herbert Davis of Birmingham, Ala. Herb is a senior at the Shades Valley school who became interested in modeling 4 years ago. He was high-point Junior winner at the '49 Detroit Plymouth International meet and captured top Senior honors there in '51. Also in '51 he captured the "AT" Kulick Memorial Trophy at Dallas in Class D speed flying (more on *that* later!)

■ The *Hot Canary* is, as the name implies, a hot, fast ship. It is painted yellow, built small and light. The total weight with Dyna-Jet engine comes to a modest 20 ounces.

My experience with jets has taught me to build them light. I do not mean to go to extremes and mount the tube on a wing and stab, but keep the weight down and at the same time have a good strong ship. The *Hot Canary* is strong and can take a beating as well as the next one.

This ship gave me a first place senior at the Dallas Nationals at a speed of 142.63 miles per hour, and a first at the Detroit Internationals at a speed of 144.29 miles per hour.

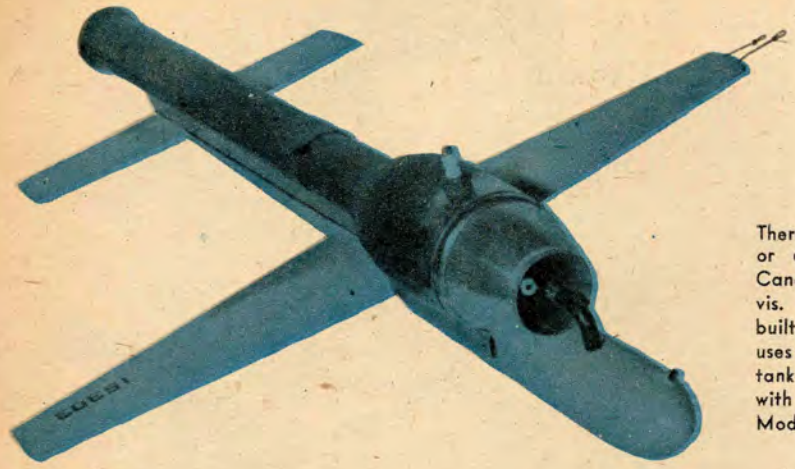
At the Peach State Model Meet in Macon, Ga., this year it racked up 157.43 miles per hour official for a new national speed record.

It was test flown in Birmingham at 150 miles per hour on the first flight. The difference in speed is, in my opinion, due to the difference in air temperatures prevalent at the various locations.

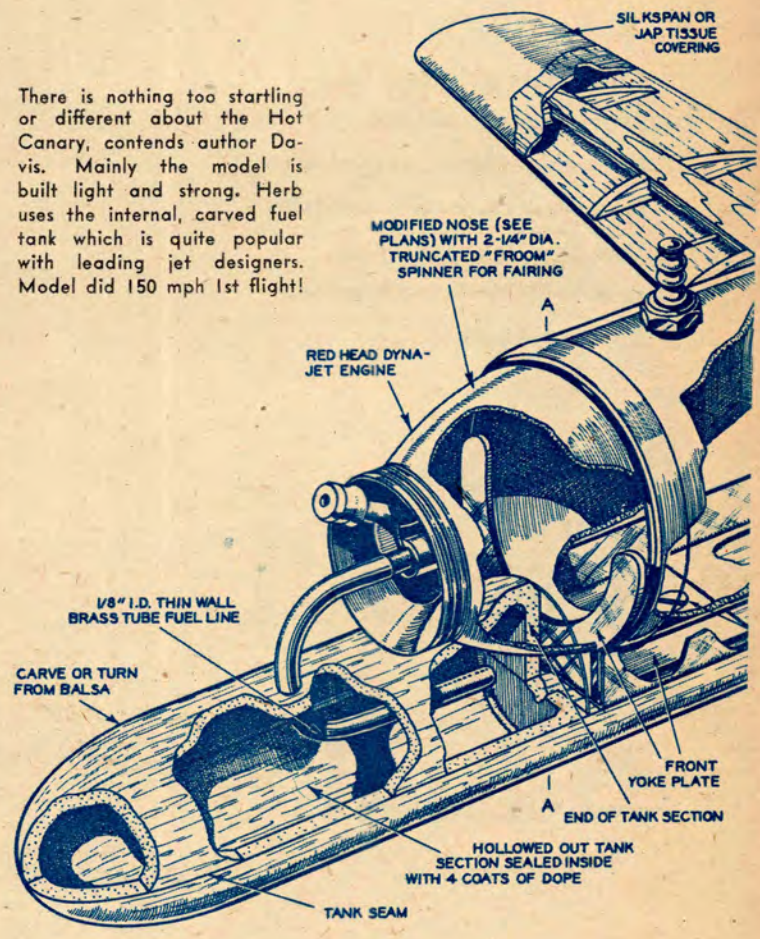
The ship is built as follows: The fuselage is made from a piece of 1½"x1½"x22" medium hard balsa. The nose may be turned on a lathe for perfect roundness, although it can be carved with the use of a template. After shaping the nose, bandsaw the rest of the fuselage to outline. The bottom of body is carved round and sanded smooth.

The fuel tank is a result of trying many types. It will get you off under most weather conditions and provide the required laps for the clocking.

The tank is made by hollowing out nose to ⅛" thickness on all sides. First the nose must be split open and then hollowed out carefully. The



There is nothing too startling or different about the Hot Canary, contends author Davis. Mainly the model is built light and strong. Herb uses the internal, carved fuel tank which is quite popular with leading jet designers. Model did 150 mph 1st flight!


SILKSPAN OR JAP TISSUE COVERING
MODIFIED NOSE (SEE PLANS) WITH 2-1/4" DIA. TRUNCATED "FROOM" SPINNER FOR FAIRING
A
RED HEAD DYNA-JET ENGINE
1/8" I.D. THIN WALL BRASS TUBE FUEL LINE
CARVE OR TURN FROM BALSA
FRONT YOKE PLATE
A
END OF TANK SECTION
HOLLOWED OUT TANK SECTION SEALED INSIDE WITH 4 COATS OF DOPE
TANK SEAM

inside of the tank is coated with 4 coats of clear dope or until all pores are filled.

Now drill holes for tubing and glue in front vent. The fuel line is not easy to bend, so I recommend heating a piece of ⅛" I.D. thin wall brass tubing until it becomes red hot; let it cool and then bend it to shape and glue it in the tank. Fasten tank halves together with plenty of glue.

The wing is of built-up construction using ⅛" ribs covered with 1/16" planking and a ⅛" beech spar. First cut out bottom planking to outline on plans, then glue ribs in place. Now cut spar and lay across ribs, mark and cut slots in ribs for spar to be glued in. Bellcrank can now be installed with pushrod and lead-outs. Put on top covering at this point.

Wing is now ready to install. Cut 3/16" x ½" x 3½" notches in the fuselage for wing and notch for spar. Bolt spar to fuselage with 4-40 bolt. Don't forget groove for pushrod. When gluing wing in make sure no glue gets near top of body, because glue tends to burn from the heat of the engine, causing very undesirable results.

The stabilizer is made from ⅛" plywood. The horn is 1/16" music wire which runs through a piece of 3/32" aluminum tubing.

Stab is slotted so horn works freely. Airfoil is symmetrical and should be mounted at 0 degrees incidence, with wing and engine.

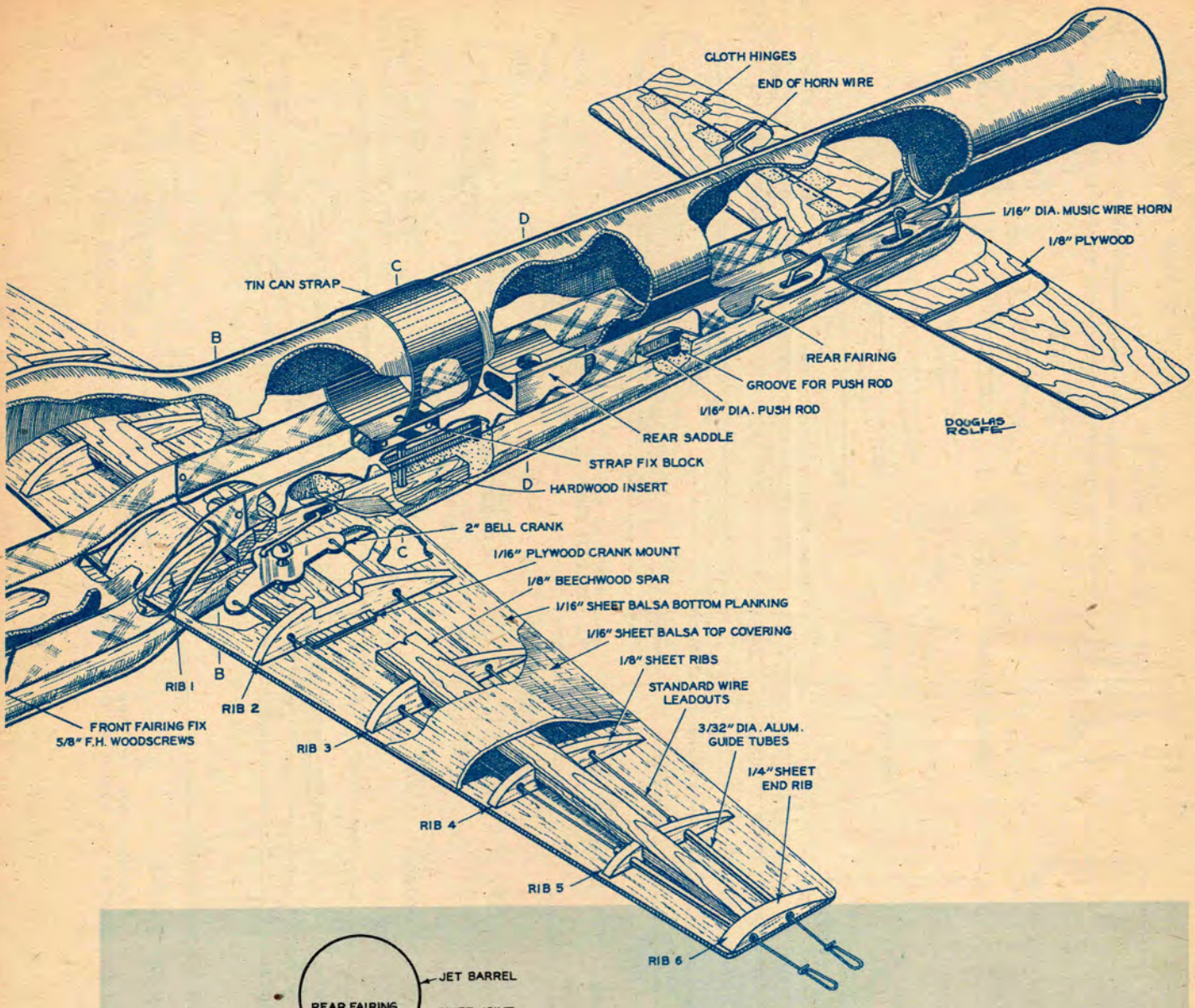
The metal fairing is made from .016 24 ST aluminum. The rear fairing should be bent on a "brake" for a perfect fit. If you do not have one, it can be done at a sheet metal works. Front fairing can be cut from pattern and bent to shape.

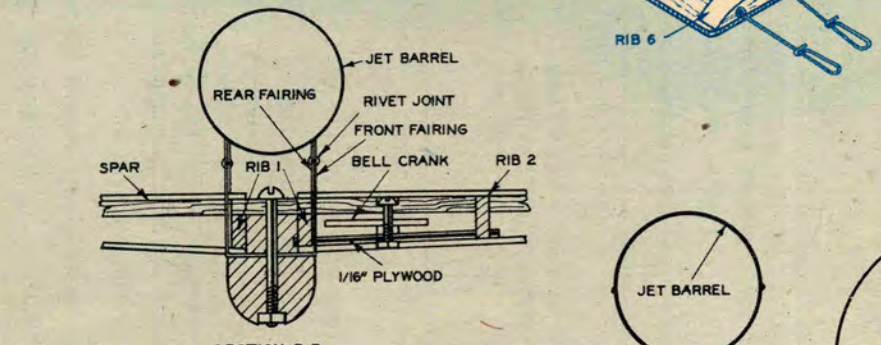
Rear saddle and front yoke can be put on after fairing parts are installed. Asbestos paper should be put in from back of front yoke to front of rear saddle which is held in with water glass.

All metal fittings should now be removed for painting. The wings are first covered with Silkspan or Jap tissue. Glue a ½" strip of gauze to bottom for a skid. Top of fuselage should be covered carefully with masking tape. Now apply four coats of a mixture of equal parts of talcum powder and clear dope, sanding between each coat. Apply three coats of yellow dope, rubbing last coat with rubbing compound and then waxing.

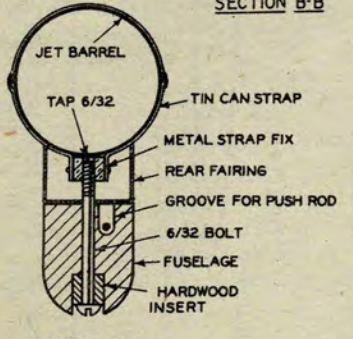
The model is skidded off the ground instead of a dolly take-off. White gasoline is used for fuel with a No. 4 metering jet.

Once considered a madman's event, model jet speed flying now is practiced throughout the world. With the *Hot Canary* we feel sure you'll get off to an easy, successful start.





SECTION B-B



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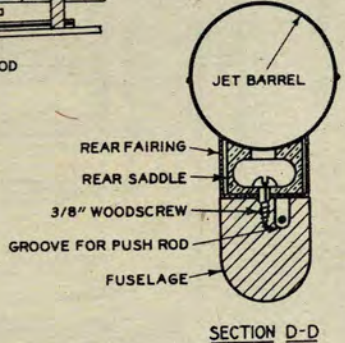

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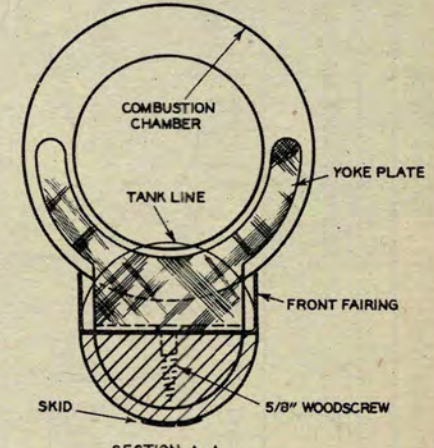
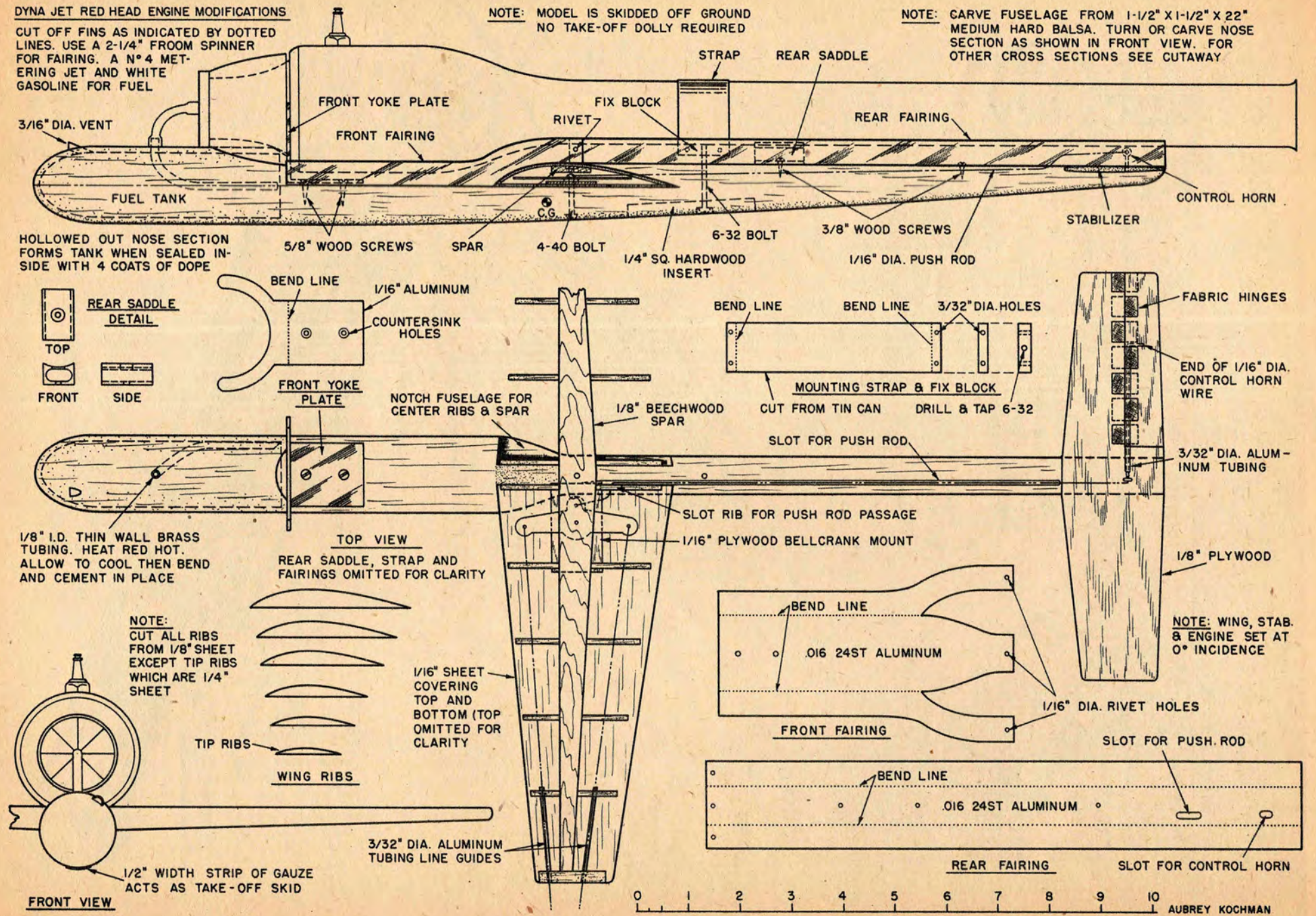


SECTION A-A


DYNA JET RED HEAD ENGINE MODIFICATIONS
CUT OFF FINS AS INDICATED BY DOTTED LINES. USE A 2-1/4" FROOM SPINNER FOR FAIRING. A N° 4 METERING JET AND WHITE GASOLINE FOR FUEL
NOTE: MODEL IS SKIDDED OFF GROUND NO TAKE-OFF DOLLY REQUIRED
NOTE: CARVE FUSELAGE FROM 1-1/2" X 1-1/2" X 22" MEDIUM HARD BALSA. TURN OR CARVE NOSE SECTION AS SHOWN IN FRONT VIEW. FOR OTHER CROSS SECTIONS SEE CUTAWAY
STRAP
REAR SADDLE
FRONT YOKE PLATE
FIX BLOCK
RIVET
REAR FAIRING
3/16" DIA. VENT
FRONT FAIRING
FUEL TANK
C.G.
CONTROL HORN
STABILIZER
HOLLOWED OUT NOSE SECTION FORMS TANK WHEN SEALED INSIDE WITH 4 COATS OF DOPE
5/8" WOOD SCREWS
SPAR
4-40 BOLT
1/4" SQ. HARDWOOD INSERT
6-32 BOLT
3/8" WOOD SCREWS
1/16" DIA. PUSH ROD
REAR SADDLE DETAIL
TOP
FRONT
SIDE
BEND LINE
1/16" ALUMINUM
COUNTERSINK HOLES
FRONT YOKE PLATE
NOTCH FUSELAGE FOR CENTER RIBS & SPAR
1/8" BEECHWOOD SPAR
BEND LINE
BEND LINE
3/32" DIA. HOLES
MOUNTING STRAP & FIX BLOCK
CUT FROM TIN CAN
DRILL & TAP 6-32
FABRIC HINGES
END OF 1/16" DIA. CONTROL HORN WIRE
SLOT FOR PUSH ROD
3/32" DIA. ALUMINUM TUBING
1/8" I.D. THIN WALL BRASS TUBING. HEAT RED HOT. ALLOW TO COOL THEN BEND AND CEMENT IN PLACE
TOP VIEW
REAR SADDLE, STRAP AND FAIRINGS OMITTED FOR CLARITY
SLOT RIB FOR PUSH ROD PASSAGE
1/16" PLYWOOD BELLCRANK MOUNT
1/8" PLYWOOD
NOTE: WING, STAB. & ENGINE SET AT 0° INCIDENCE
BEND LINE
.016 24ST ALUMINUM
1/16" DIA. RIVET HOLES
FRONT FAIRING
NOTE: CUT ALL RIBS FROM 1/8" SHEET EXCEPT TIP RIBS WHICH ARE 1/4" SHEET
1/16" SHEET COVERING TOP AND BOTTOM (TOP OMITTED FOR CLARITY
TIP RIBS
WING RIBS
SLOT FOR PUSH ROD
BEND LINE
.016 24ST ALUMINUM
REAR FAIRING
SLOT FOR CONTROL HORN
3/32" DIA. ALUMINUM TUBING LINE GUIDES
1/2" WIDTH STRIP OF GAUZE ACTS AS TAKE-OFF SKID
FRONT VIEW
0 1 2 3 4 5 6 7 8 9 10
AUBREY KOCHMAN

HERB DAVIS' HOT CANARY

R/C at the Nationals

By HOWARD G. McENTEE

Early R/C operations: Jim Walker flying one of his first ships.

VITAL STATISTICS

Bonner, Howard T., Los Angeles, Cal. 34-3†, Rudderbug (rect. fuselage, lengthened nose) 74" span, 850 sq. in. area; K&B .19 with 9/4 prop; 2-arm Bonner esc. on rudder, pulse esc. for motor 2-speed; MacNabb rec.† and trans.; motor 2-speed, used 2 needle valves with air bleed on one.

Bothner, Charles G., 23-3, Rutherford, N. J., Ridgewood (N.J.) Sky Hawks†; Rudderbug, 74" span, 850 sq. in. area; 64 oz., 10.8 oz. wing loading; O&R .23 with 11/4 prop; pulse control on rudder; orig. rec., RK61, orig. MOPA trans. 832A tube final, 9 watts, 50 mc, vert. ant., electronic pulser.

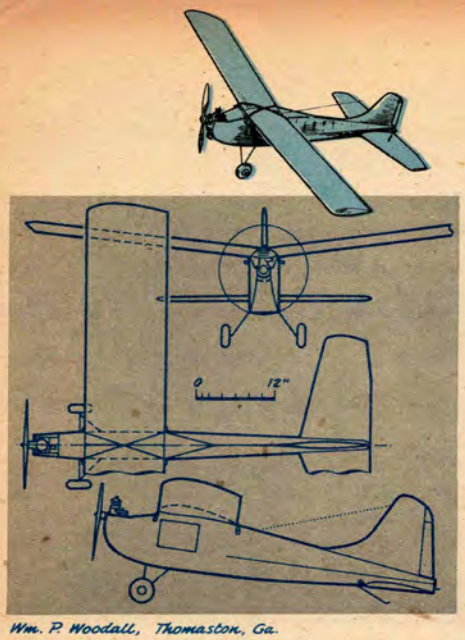
Butler, Wm. L., W6JX, 56-3, Inglewood, Cal., Inglewood Flightmasters; orig. plane, 48" span, 380 sq. in. area, 48 oz., 18.2 oz. wing loading; Arden .199 with 10/4 prop.; Bonner esc. on rudder; Aerotrol rec., RK61; orig. trans. 2-6C4 P.P., 4 watts; folded dipole ant.; 6V storage batt. and dynamotor for power. (*Continued on page* 59)

† Where MacNabb rec. and trans. are specified, 6K4 tubes are used, average power input is about 2 watts, 465 mc., beam antenna and pushbutton control are standard; all engines glow ignition where not specified, and plain tank used; pushbutton control if not listed otherwise. Numerals following flyer's name are ham license (if any), age and number of years in R/C; club name (if any) follows address. Aside from those with MacNabb equipment, all entrants used 6-meter band, except Walker—rumored to be on 10 meters.

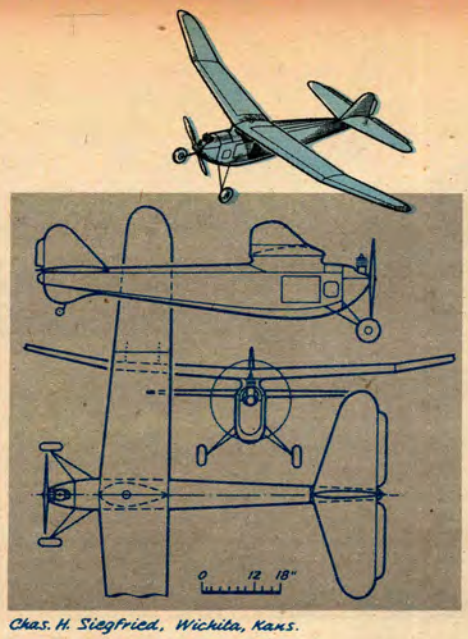
High spot of radio-control plane flying comes during annual National contest; here's inside info

■ As the big, annual Radio Control Event drew to a close we experienced a feeling of real regret—regret that so few radio flyers had been on hand to enjoy one of the best Nats R/C Events that could be run. The weather, as the whole world doubtless knows by now, was HOT, but better flying weather for a six-day period will probably never be seen. A good deal of the time there was just the slightest breeze, yet even so some guys weren't satisfied. We heard several owners of rather heavy fast ships bewailing the *lack* of wind, as they couldn't R.O.G. without it. Maybe this is an omen of the direction toward which contest-type R/C is headed.

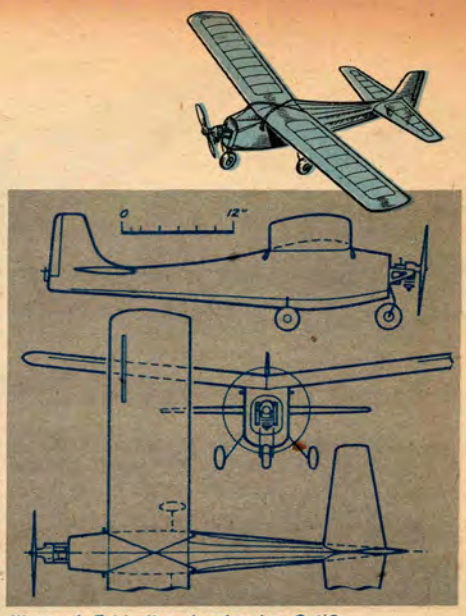
The lack of entrants was laid to many causes, not the least of which was the Kansas-Missouri flood. Among the "cancelees" in connection with this were men who had been slated to act as R/C Event Directors. Distraught A.M.A. officials therefore laid in wait for the first experienced R/C man to show up; this happened to be Gene Foxworthy, who was promptly nominated



Wm. P. Woodall, Thomaston, Ga.



Chas. H. Siegfried, Wichita, Kans.



Wayne A. Schindler, Los Angeles, Calif.

Director. Gene can be thanked for the smooth progress of the event, along with Commander Fairbanks and his group of judges, all Navy pilots.

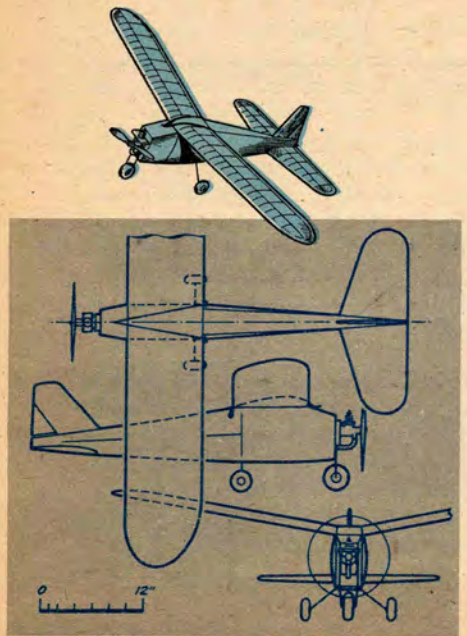
A.M.A. rules were adhered to strictly, and F.C.C. rules were followed likewise. Not since 1948 has the F.C.C. been "in attendance" at the Nats, but they were there this time! However, as far as we could learn, no one who really wanted to fly was prevented from so doing because of their forbidding presence. Several flyers who had no ham licenses *really* flew by radio remote control! They called out signals to a ham operator who then pushed the control button. When, oh when, are we going to be able to stop such foolishness and fly with a genuine license-free band, as do the modelers in England, South Africa, and other "enlightened" countries!

This year marked the first wide-scale use of Citizens Band (465 mc.) equipment at the Nationals, with a dozen or so flyers employing it. Even these transmitters had to be checked for frequency before use; all were passed as O.K., however. (In fact, we did not hear of *any* off-frequency operation.) It is unfortunate that none of the A.M.A. Experimental-Licensed 11 meter transmitters were in use. Aside from Citizens Band activity, all other flyers were on the old faithful 6 meter band, though we heard rumors of one who worked on the 10 meter band to avoid possible interference he had experienced before.

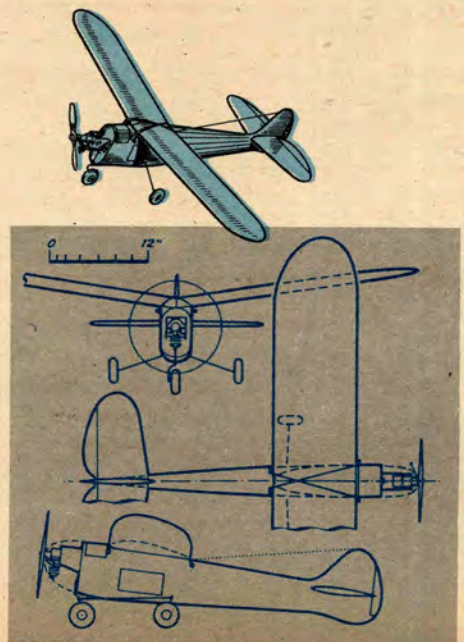
The flying this year was practically continuous and of high order. A study of some of the score sheets shows that many received points for such items as "Motor Cut-off by R/C", and almost all the top placers did good Immelmans, chandelles and loops, while several executed two consecutive loops or rolls. Spot landings were generally good with many flyers scoring 40-45 points (50 is tops for a perfect spot).

Despite this high grade of flying, most men still used rudder only, although quite a few had motor 2-speed attachments of one sort or another. Escapement operation is still by far the most prevalent, but there were several pulse control systems flying, and several more that didn't fly, though not because of the control system. Top man Walker used the same positive-position selector system he has had at the last two Nats; second to fourth place planes were all escapement-steered, while a pulse man took fifth.

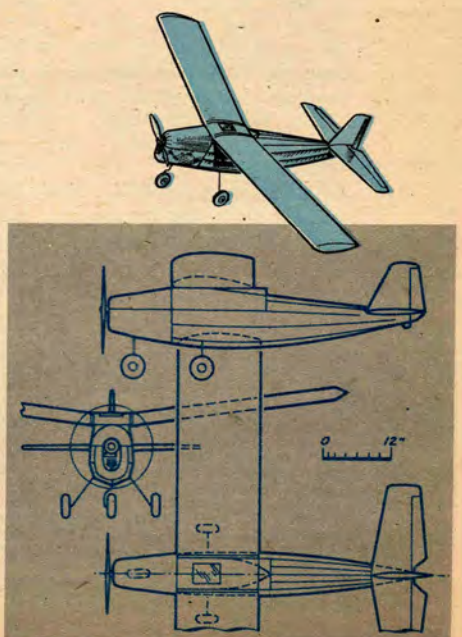
In addition to the systems mentioned, we saw audio-tone control, Rudevator, Motorudder, and last but by no means least, the rotary selector equipment of C. H. Siegfried. "Siggie" was the hard-luck man of *this* meet; he started out with several flat tires, and when these were repaired and he had just about gotten his huge ship ready to fly, the only serious rain squall of the entire week forced him to disassemble frantically



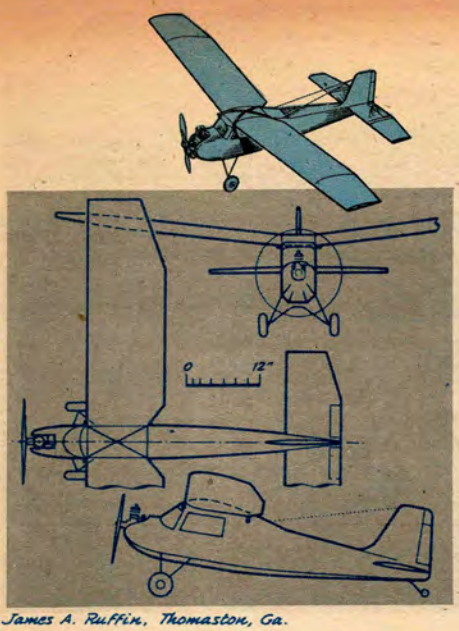
Walter E. Harter, Belleville, Ill.



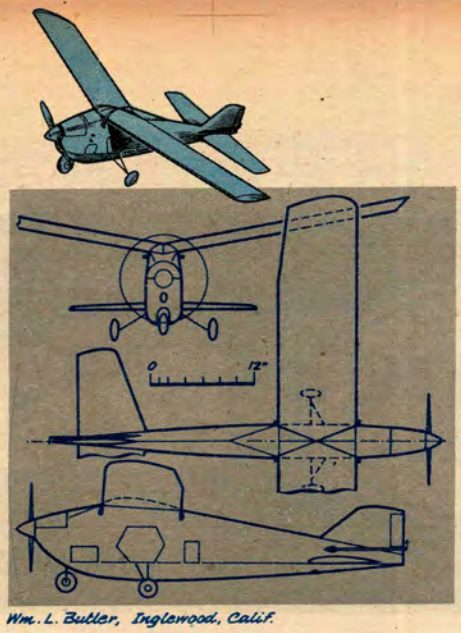
T. R. Querman, Floral Park, N.Y.



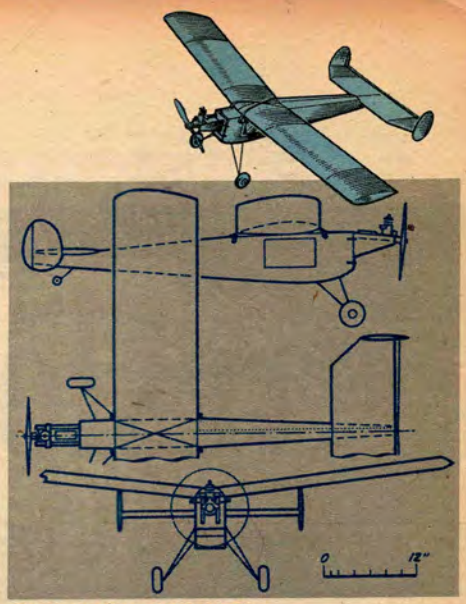
Jim Walker, Portland, Oreg.



James A. Ruffin, Thomaston, Ga.



Wm. L. Butler, Inglewood, Calif.



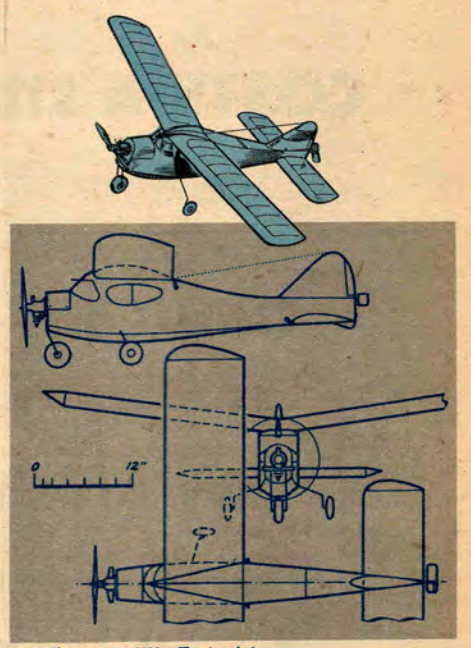
Frank W. Miller, Midland, Tex.

before the downpour struck. Next, his ship taxied into a parked car during an attempted take-off, damaging the nose somewhat. Repairs again. Then, as he awaited his turn for an official flight, the plane of another R/C contestant dove in and —sure enough—went right through Siggie's stab. We'd like to say this ended the bad luck, but further little equipment trouble bedeviled this R/C pioneer. He did manage to get in several official flights.

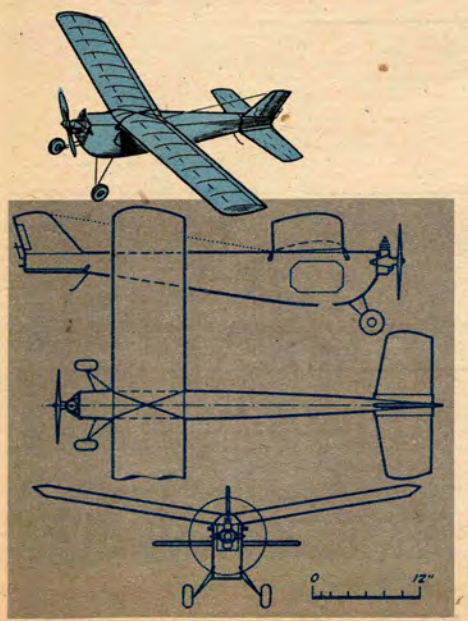
In contrast to other Nationals, there were not many serious crack-ups during official flying, though Frank Schmidt "stacked" his ship in a test flight, and John Curry of Los Angeles lost his, also during tests. John's plane didn't go too far; its disappearance was due solely to some of the human vultures that seem to infest the outskirts of every large meet.

While the Navy was prepared to hold off the expected crowds who always come to enjoy the Radio Event, these crowds never materialized. Even the appearance of Commander Arthur Godfrey did not raise the attendance noticeably. Perhaps Texans have sense enough to stay in out of the heat and sun. There were even very few contestants from other events who dropped in to see the fun at R/C.

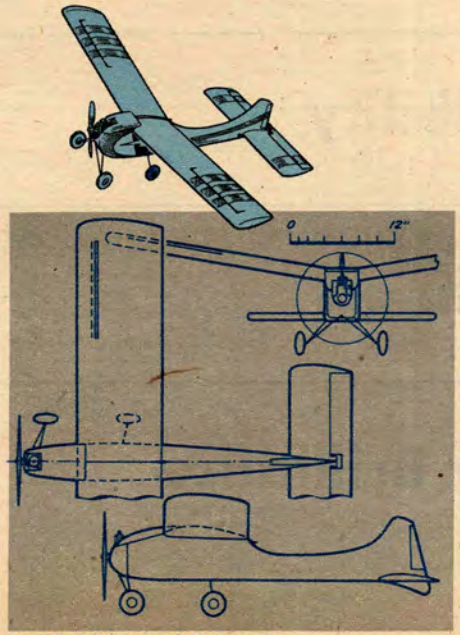
It's too bad R/C can't be flown at some time when other events are not underway so that other contestants can see the show. No one will deny the fascination of watching radio flying—free flighters, controliners and rubber men all like to look on, and it is from their ranks that the active R/C converts come. It has been suggested that the R/C boys put on an exhibit before or during the meet. Perhaps they could be assembled with their planes and equipment in a roped-off area in the shop hangar so that other flyers interested, but not active in R/C, could look over their ships and ask questions. (*Continued on page 58*)



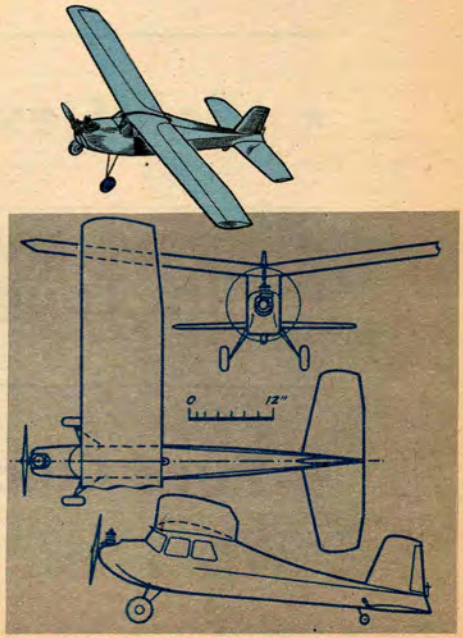
H. A. Thomas, Little Rock, Ark.



Bob Luther, Ft. Worth, Texas



Claude McCullough, Ottumwa, Ia.



Howard T. Bonner, Los Angeles, Calif.

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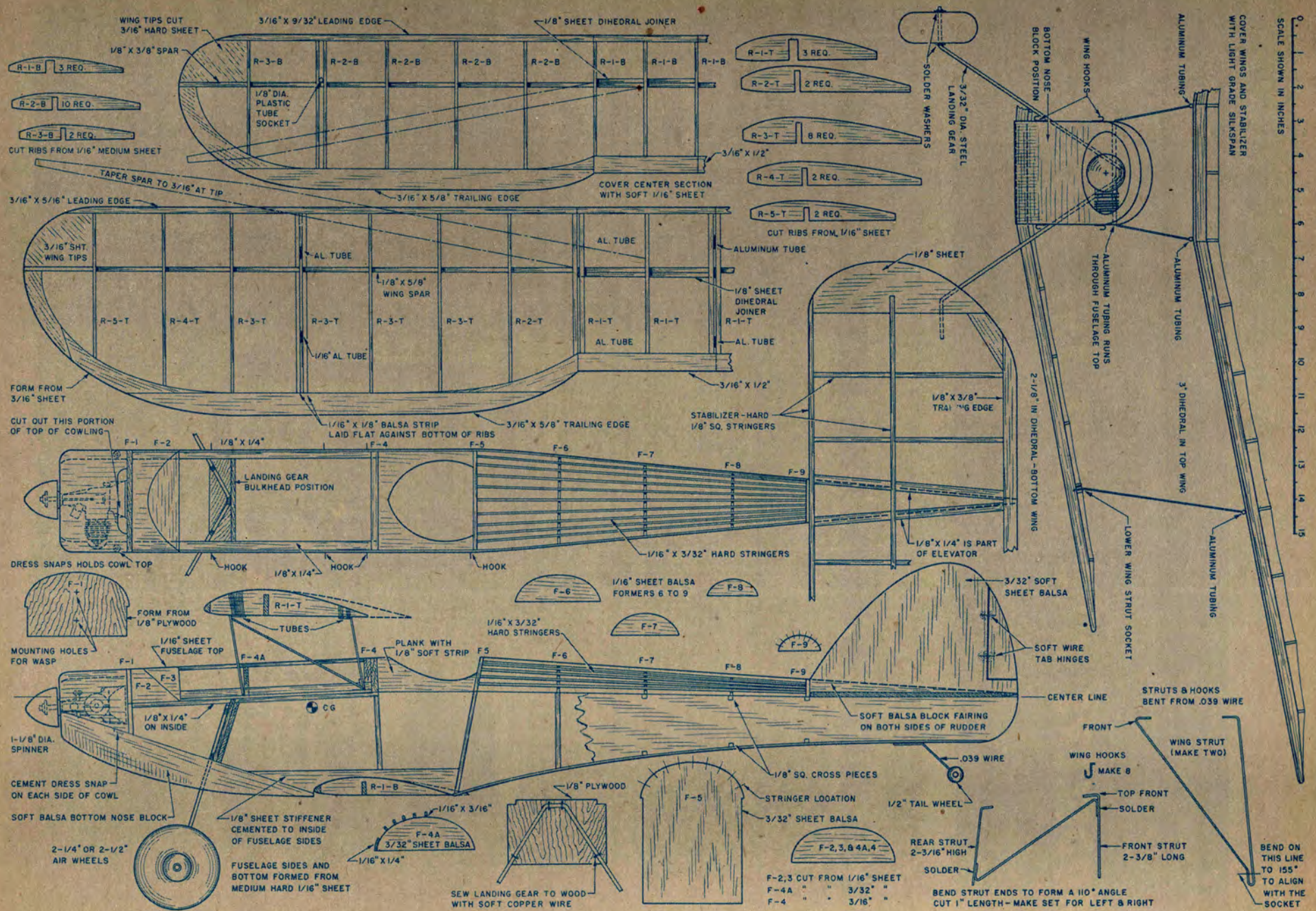
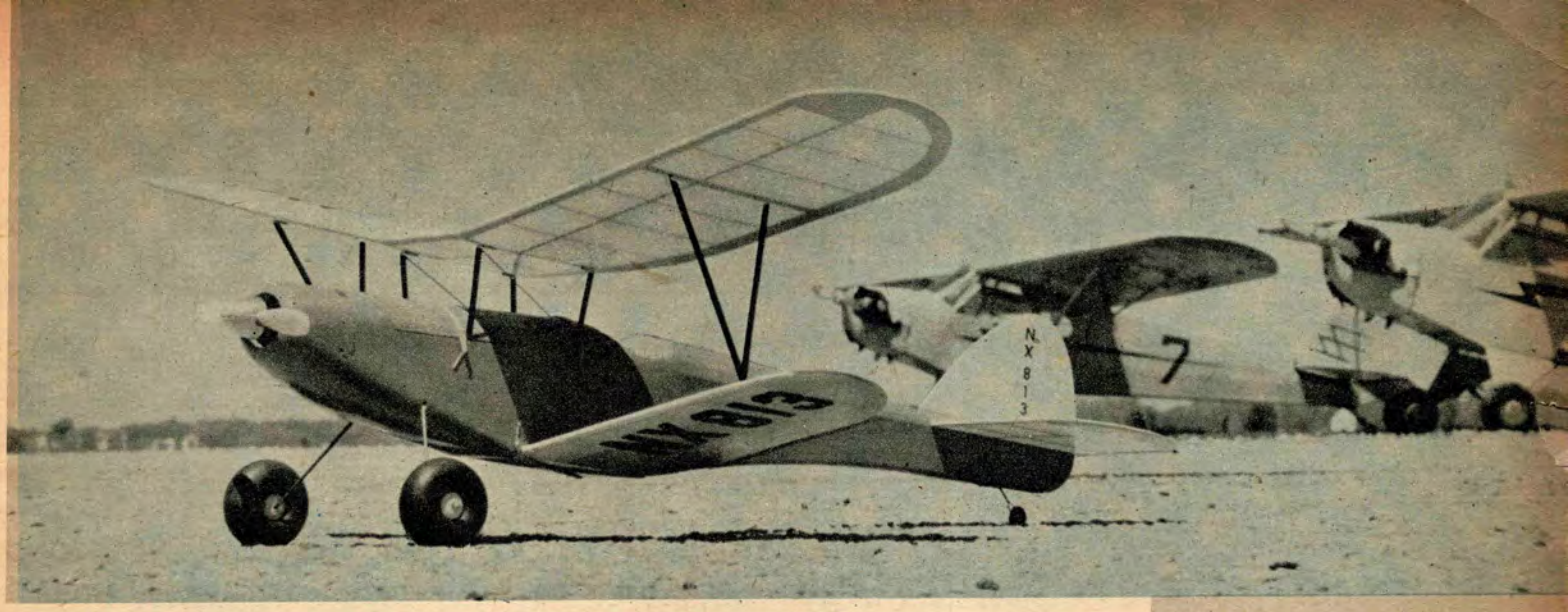

WING TIPS CUT 3/16" HARD SHEET
3/16" X 9/32" LEADING EDGE
1/8" SHEET DIHEDRAL JOINER
1/8" X 3/8" SPAR
R-1-B 3 REQ.
R-2-B 10 REQ.
R-3-B 2 REQ.
CUT RIBS FROM 1/16" MEDIUM SHEET
1/8" DIA. PLASTIC TUBE SOCKET
TAPER SPAR TO 3/16" AT TIP
3/16" X 1/2"
3/16" X 5/8" TRAILING EDGE
COVER CENTER SECTION WITH SOFT 1/16" SHEET
R-1-T 3 REQ.
R-2-T 2 REQ.
R-3-T 8 REQ.
R-4-T 2 REQ.
R-5-T 2 REQ.
CUT RIBS FROM 1/16" SHEET
SOLDER WASHERS
3/32" DIA. STEEL LANDING GEAR
BOTTOM NOSE BLOCK POSITION
WING HOOKS
ALUMINUM TUBING
COVER WINGS AND STABILIZER WITH LIGHT GRADE SILKSPAN
SCALE SHOWN IN INCHES
3/16" X 5/16" LEADING EDGE
3/16" SHT. WING TIPS
AL. TUBE
1/8" X 5/8" WING SPAR
1/16" AL. TUBE
ALUMINUM TUBE
1/8" SHEET DIHEDRAL JOINER
FORM FROM 3/16" SHEET
1/16" X 1/8" BALSA STRIP LAID FLAT AGAINST BOTTOM OF RIBS
1/8" SHEET
1/8" X 3/8" TRAILING EDGE
2-1/8" IN DIHEDRAL - BOTTOM WING
3" DIHEDRAL IN TOP WING
ALUMINUM TUBING RUNS THROUGH FUSELAGE TOP
STABILIZER - HARD 1/8" SQ. STRINGERS
CUT OUT THIS PORTION OF TOP OF COWLING
F-1 F-2 F-4 F-5 F-6 F-7 F-8 F-9
1/8" X 1/4"
LANDING GEAR BULKHEAD POSITION
1/16" X 3/32" HARD STRINGERS
1/8" X 1/4" IS PART OF ELEVATOR
DRESS SNAPS HOLDS COWL TOP
HOOK
1/8" X 1/4"
HOOK
HOOK
LOWER WING STRUT SOCKET
ALUMINUM TUBING
1/16" SHEET BALSA FORMERS 6 TO 9
3/32" SOFT SHEET BALSA
FORM FROM 1/8" PLYWOOD
MOUNTING HOLES FOR WASP
R-1-T
TUBES
1/16" SHEET FUSELAGE TOP
PLANK WITH 1/8" SOFT STRIP
F-4A
F-3
F-2
1/8" X 1/4" ON INSIDE
CG
SOFT WIRE TAB HINGES
CENTER LINE
STRUTS & HOOKS BENT FROM .039 WIRE
SOFT BALSA BLOCK FAIRING ON BOTH SIDES OF RUDDER
1-1/8" DIA. SPINNER
CEMENT DRESS SNAP ON EACH SIDE OF COWL
SOFT BALSA BOTTOM NOSE BLOCK
1/8" SHEET STIFFENER CEMENTED TO INSIDE OF FUSELAGE SIDES
FUSELAGE SIDES AND BOTTOM FORMED FROM MEDIUM HARD 1/16" SHEET
2-1/4" OR 2-1/2" AIR WHEELS
.039 WIRE
1/8" SQ. CROSS PIECES
1/2" TAIL WHEEL
WING HOOKS
MAKE 8
FRONT
WING STRUT (MAKE TWO)
TOP FRONT
SOLDER
FRONT STRUT 2-3/8" LONG
REAR STRUT 2-3/16" HIGH
SOLDER
BEND STRUT ENDS TO FORM A 110° ANGLE
CUT 1" LENGTH - MAKE SET FOR LEFT & RIGHT
BEND ON THIS LINE TO 155° TO ALIGN WITH THE SOCKET
1/8" PLYWOOD
1/16" X 3/16"
F-4A 3/32" SHEET BALSA
1/16" X 1/4"
SEW LANDING GEAR TO WOOD WITH SOFT COPPER WIRE
F-5
STRINGER LOCATION
3/32" SHEET BALSA
F-2,3,& 4A,4
F-2,3 CUT FROM 1/16" SHEET
F-4A " " 3/32" "
F-4 " " 3/16" "



BOB MILLER'S

K.C. Cutie

How can you resist this F/F beauty? Rediscover fun of line-less flying!

About the Author: *Robert W. Miller of Richmond Heights, Mo., calls this job "Little Joe" (note the dice painted on the fuselage), but the editorial staff says the bipe's such a beauty it must be a "she"— hence "K.C. Cutie." Bob is 33, a motion picture projectionist, married, wife's name is Eleanor ("best helper a guy ever had and a darn good photographer"), has son Robert, 2½. Flies with St. Louis County Master Modelers; served 5 years with AF. Holds pilot's license; started modeling in '28 with Boy Scouts. Builds one rubber job per year to keep hand in; likes unconventional free flight—low wing, twin tractor, pusher, canard. Has twin engine R/C semi-scale job. Recently had R/C job land on passing freight.*

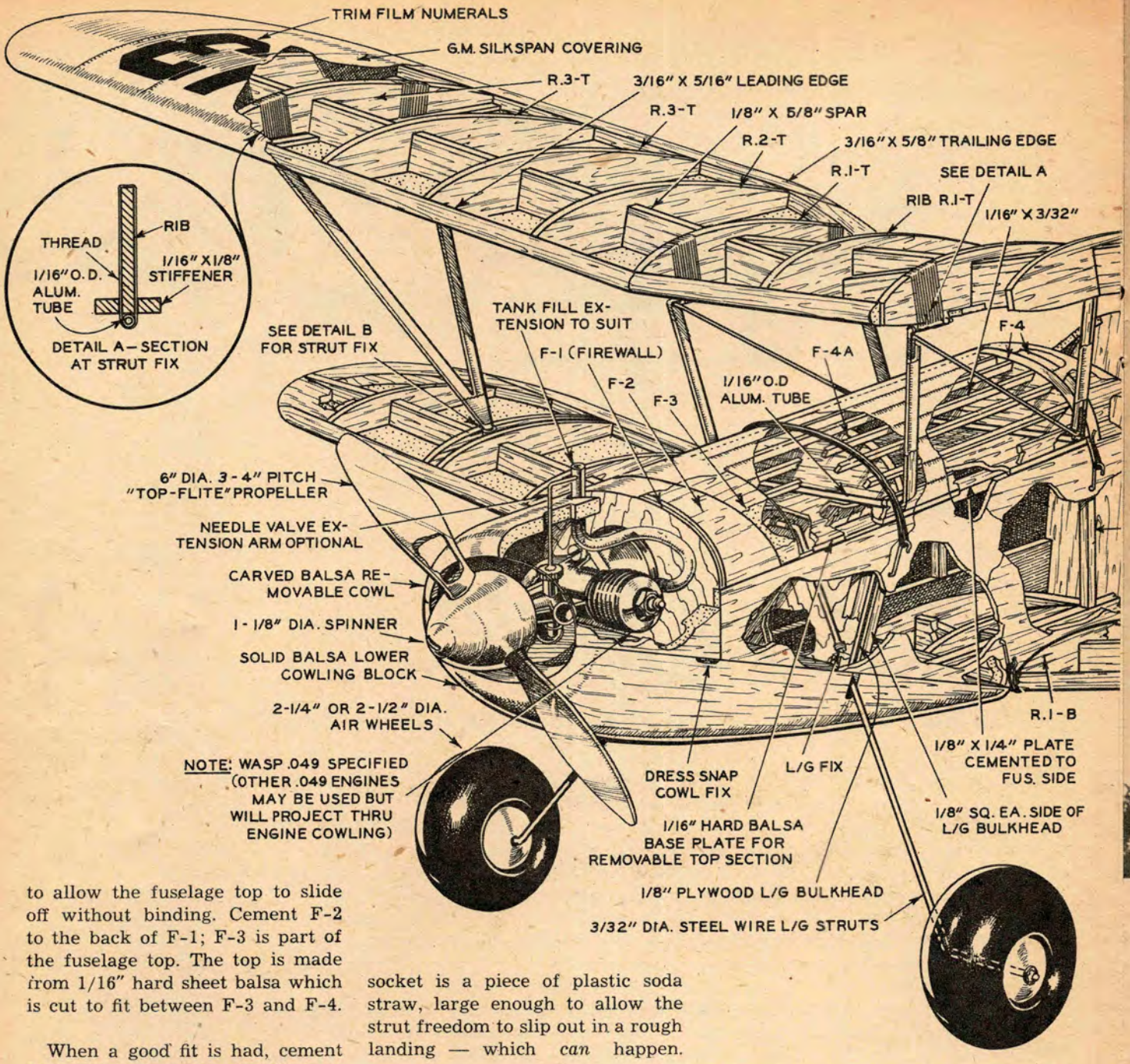
■ Like many other model builders, I have always had a fond love for biplanes. Yet most of us put them aside for the conventional monoplane because of their complexity and the extra wing required. *Cutie* is the result of some questions asked of me by a young builder, and in this model I have tried to combine realism and good sport performance.

The total wing area is about 350 square inches and the finished weight, including a paint job, is 14 ounces. The climb is good and on a 20 second motor run the model can cover considerable distance if a breeze is blowing. Incidentally, *Cutie* flies equally well in a wind and will roll out on the top of a stall if improperly launched.

The fuselage sides are cut from medium hard 1/16" sheet balsa; be careful to maintain the correct nose angle and lower wing cut-out. Cement bulkheads F-1 and F-5 in position on one side, and when dry cement on the other side. Draw the fuselage ends together and cement. Add the remaining formers to the back and attach the 1/16"x3/32" hard balsa stringers. The cockpit between F-4 and F-5 is filled in with soft ⅛"x¼" balsa; sand smooth and then cut out. Attach the landing gear to the ⅛" plywood bulkhead and cement in place.

Carve to shape and add the soft balsa bottom nose block which runs from the lower wing cut-out to the tip of the nose. Cover the bottom with medium 1/16" sheet balsa running the grain across the fuselage.

The balsa block behind F-1 is made in two pieces which are slanted 45 degrees



to allow the fuselage top to slide off without binding. Cement F-2 to the back of F-1; F-3 is part of the fuselage top. The top is made from 1/16" hard sheet balsa which is cut to fit between F-3 and F-4.

When a good fit is had, cement F-3 and F-4 to the 1/16" sheet balsa bottom. Add F-4a and then the 1/16" O.D. aluminum tubes and finally the 1/16"x3/32" stringers.

Build the elevator in the usual manner and cement it on the fuselage. Next add the rudder and fill in blocks on each side of it.

Wings offer no problem as they are conventional in construction. The wing strut fittings on the bottom of the top wing are cut from 1/16" O.D. aluminum tubing and are bound in place with thread and well coated with cement. Add a piece of 1/16"x1/8" balsa on each side of these ribs after the tubing is in place. The lower wing strut socket is a piece of plastic soda straw, large enough to allow the strut freedom to slip out in a rough landing — which *can* happen.

Bend the wing struts to shape, assemble the model and check the rig of the top wing for incidence angle at this time.

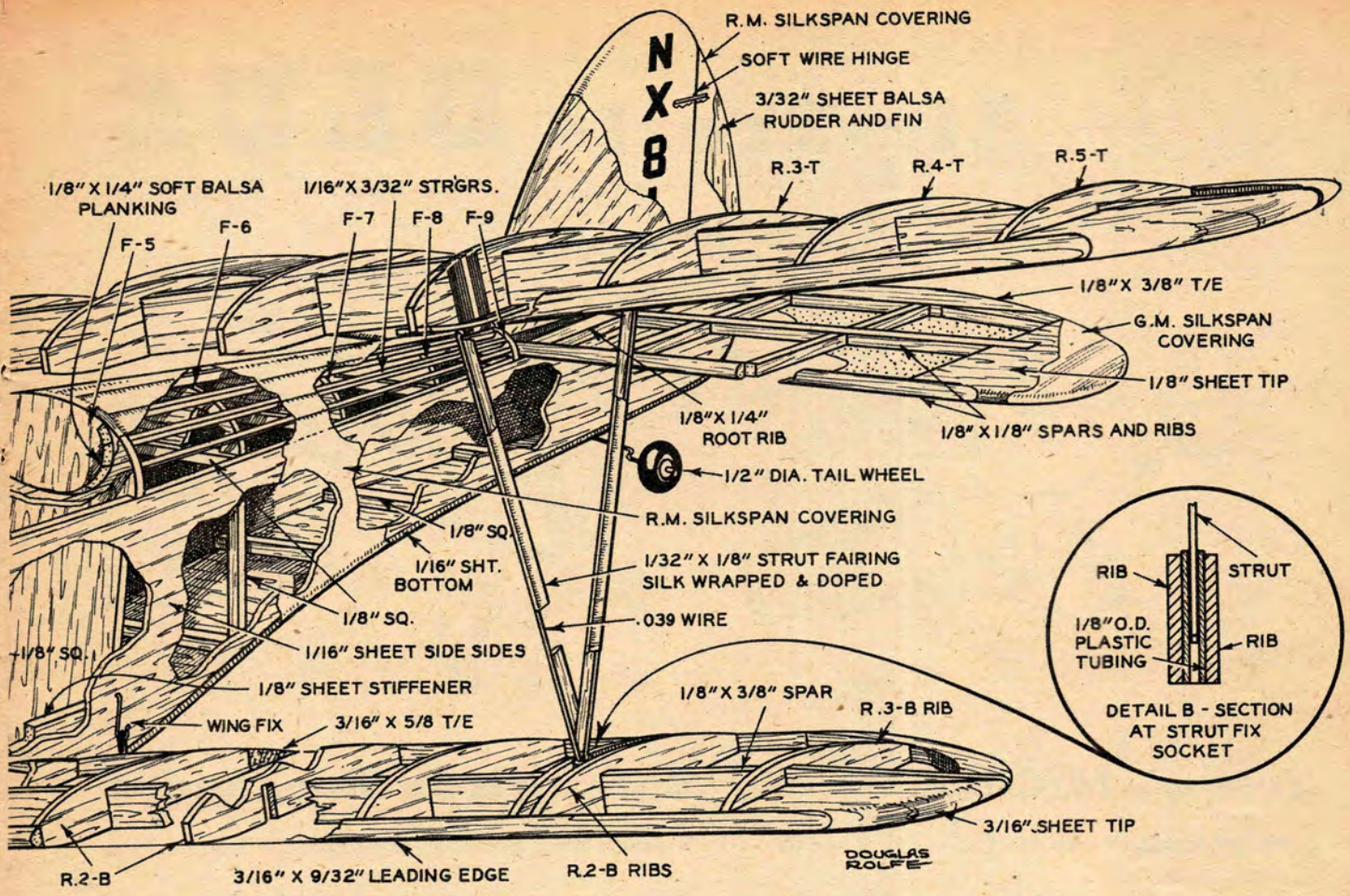
If correct, add the 1/32"x1/8" fairings to the struts by wrapping doped silk around them and the wire.

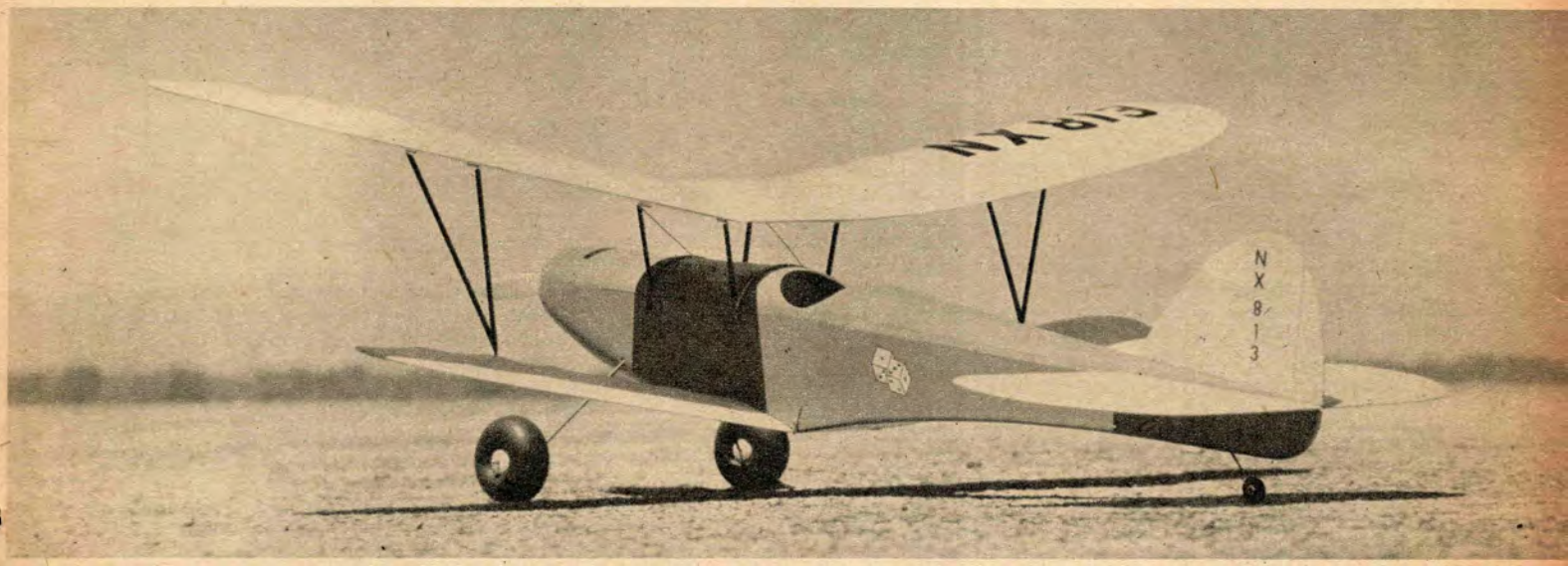
Air wheels were used on our model. Since one ounce of lead had to be added to the nose, sponge wheels can be used to help trim the model and reduce the amount of lead required for balance.

Any fuel tank can be chosen, but our model employs the coiled length of tubing method and external starting tank. A 12" length of 3/32" bore tubing will give a 20 to 30 second run depending on the prop used.

Cover the wings and elevator with GM Silkspan for greater strength. Rubber model Silkspan is doped on the fuselage sides and rudder to add strength to the wood and also to cover the grain.

Apply two coats of clear dope and one of color. The weight of one coat of colored dope is negligible, is far better looking than colored tissue and does not fade. The color





scheme of *Cutie* is: yellow wings and tail, bright green fuselage, yellow dice and black struts. The dice are cut from yellow Trim Film with the dots and edges inked in with black India ink. The model is now fuel proofed all over unless a fuel proof finish was used from the beginning of the job.

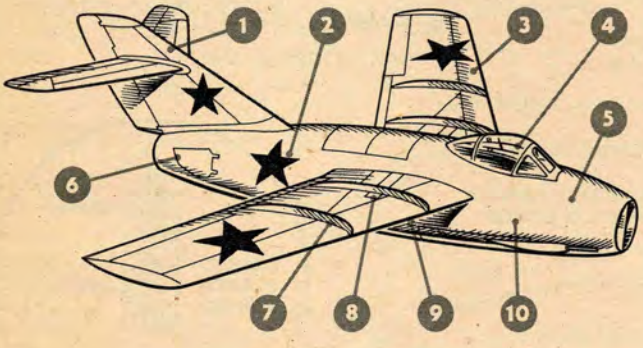
The finished model should balance 1¼" behind the top wing spar as shown on plan.

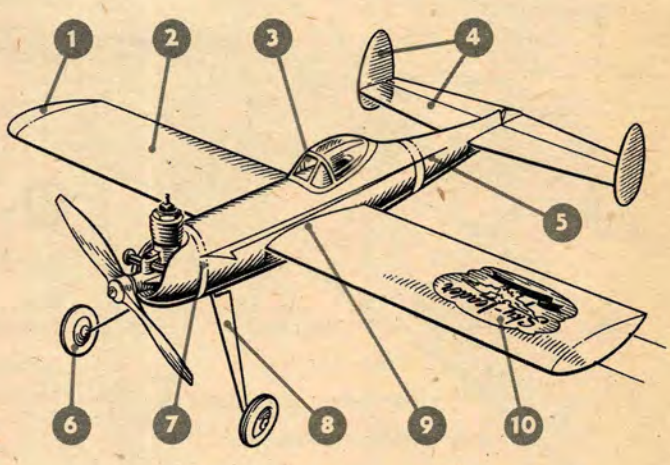
If it does not balance at this point, add weight to the nose or tail as required. Try gliding the model until a fairly fast glide results with no tendency to mush or stall. The ship is very sensitive to rudder setting, so be careful.

On first power flight, try 6" dia., 3 or 4 inch pitch prop and give it about ⅛" right rudder.

To reduce thrust, the prop can be put on backwards and the model will just fly, but the torque will be about the same. This will indicate the degree of power turn without the danger of high-speed flight.

When model is finally trimmed, turn the prop around and watch *Cutie* climb.





Testor's MiG-15

Features molded-balsa fuselage with Key-Lok

■ A unique series of all-balsa models marks the entrance of Testor Chemical Company into the field of small prefab scale kits. Though designed and sold solely as non-flying shelf models, we haven't a doubt that many of these jobs have already taken to the air with Half-A, rubber, or Jetex power.

The series so far consists of three noted fighters, the Spitfire, Sabre, and MiG-15. The Sabre and Spit span 17½", while the Russian jet measures 15¾" tip to tip.

Construction features made popular by the big Testor Senior stunt models are reduced to miniature in these de luxe ships. We find the same Key-Lok fuselage keel assembly, over which are fitted two molded balsa shells to form a smooth realistic body. The main keel piece is vertical with odd-shaped cut-outs at each former station. Die-cut formers are simply inserted flat-wise, then rotated 90 deg., whereupon they lock firmly in perfect alignment, ready for the cement. A single die-cut curved longeron fits along the outer edges of the formers on each side; that's the complete fuselage framework, all finished! Next, two molded balsa shells are fitted in place and cemented tight.

The wing also features molded technique, for the upper half of each wing is cut to planform, beveled on the underside edges and curved to shape. There are three ribs beneath each panel and a 1/32" balsa covering over these. The finished wing has a thin, nearly symmetrical airfoil shape. A ⅜" square spar fits through slots in the fuselage shells for automatic positioning. Then the two wing panels, which are slotted for the spar, are slipped in place and cemented to the spar and fuselage sides. Tail assembly is of 3/32" balsa in three pieces, rudder and two half-elevators.

The cockpit canopy is ready to use with no trimming whatever. As a final touch, the decal sheet has sufficient five-pointed meatballs to stick all over the ship—there are eight of them in various sizes.

1. Die-cut tail group. 2. Colored decal insignia. 3. Die-cut, formed top wing surfaces. 4. Plastic cockpit canopy. 5. Formed fuselage shells. 6. Indicated on plans. 7. Wing "fences." 8. Wing joiner. 9. Die-cut ribs, lower surfaces. 10. Die-cut fuselage frame.

Enterprise's Sky-Leader

Wonder Wing provides pre-fabbed lifting surface

■ The latest Half-A controline kit by Enterprise Model Aircraft and Supply Co., Inc., Brooklyn 3, N. Y., Sky-Leader, is almost elementary in construction, but a more thorough examination of the parts shows that while the purchaser won't have any difficult work to do, the manufacturer did *plenty* of work to make this an ultra prefab kit.

Take that "Wonder Wing"; it comes in just five pieces; a little cementing and sanding produce a shaped hollow all-balsa lifting surface. The wing actually is built of a shaped hollowed leading edge and a shaped and hollowed trailing edge; the gimmick is that these fore and aft edges are each one-half chord wide. Two balsa tips finish the job.

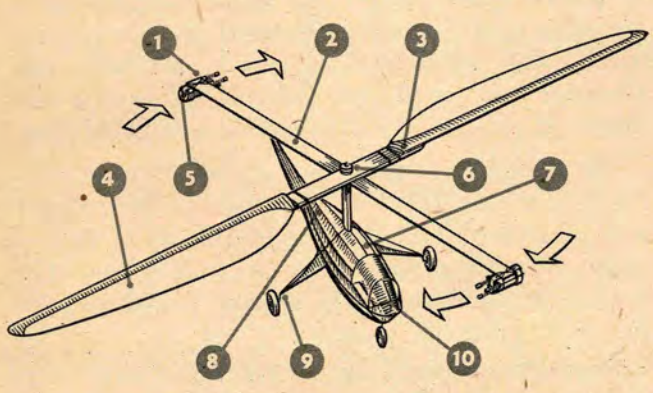
The fuselage is another place where a lot of work by designer Jerry Brofman enables the builder to produce a well-shaped balsa structure in no time at all. The fuselage is in two halves also. The forward portion of both is hollowed and the cockpit opening cut. A die-cut firewall provides for radial engine mounting, while if you prefer lug mounting ply is furnished, too.

Tail surfaces are all of 1/16" balsa; the rudders will be easy to cement in place, for they are slotted to fit over tabs on the stabilizer. There is a stamped aluminum bellcrank and a music wire pushrod. The lead-out wires are intended to go through the hollow wing and provisions for installing the entire control system must naturally be made before the wing and fuselage halves are assembled. Blocks of balsa are included for forming a partial engine cowling, but are not shaped in any manner, due to the great variation in engine outline, mounting and gas tank details.

The wing is practically ready for doping as it comes, after the cement joint and tips are smoothed off. A little further sanding will bring fuselage and tail surfaces up to the point where the builder can apply any sort of finish desired.

1. Shaped tip blocks. 2. Ready-formed "Wonder Wing." 3. Formed plastic canopy. 4. Die-cut tail surfaces. 5. Shaped, hollowed fuselage. 6. Plastic composition wheels. 7. Plywood engine mount. 8. Formed landing gear. 9. Finished control system parts. 10. Colored decal.

RIBBON MODELS



American Telasco's Jeticopter 100

Jetex powers this operating helicopter

■ This kit is something of a novelty and quite a lot out of the usual line we have followed in this series. First, it's a Jetex-powered ship, and second, a helicopter. For those who have tried more or less scale-type helicopters, with the usual rather indifferent success, let us say right here that this one *flies*, and flies well.

Tests of the Jeticopter 100 have shown it reaches 75-100 ft. altitude on the average flight; power flight is pretty nearly straight up—in calm air—and when the jet is exhausted, the little whirligig comes down gently with the rotor blades spinning in so-called auto-rotation. The downward trip takes a lot longer than the upward, and total flight time runs around 1 minute. The Jetex unit produces power for about 15-20 sec., but this can be reduced as desired, by putting in only a partial charge of the solid fuel.

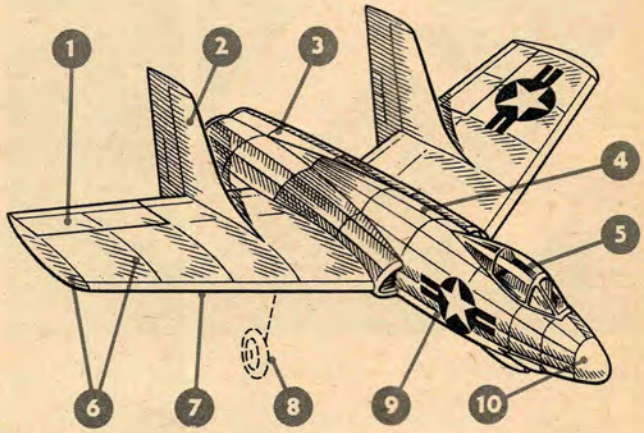
This kit is produced by American Telasco, Ltd., New York 18, N. Y., who also supply the Jetex motors with fuel, though all can be obtained from most hobby shops. The engine and fuel are English developments as is the Jeticopter design. A look at the plans shows that the blades are free to fold upward, but stops keep them from dropping below horizontal. Though it might seem so, the blades do not fold up completely when you try to fly the 'copter; centrifugal force holds them outward, though they do incline upward at a slight "coning angle."

The kit follows accepted prefab practice: there are several sheets of printed die-cut parts, two of these being rather hard ⅛" stock for the two rotor blades; the fuselage is built up from a sort of wishbone-shaped piece, with two formers and longitudinal stringers. It is very light, as it has no real function except to hold gear.

Motive power is furnished by two Jetex 100 units; the kit even includes one of these, plus a pair of mounting brackets.

The Jeticopter is quite large—the rotor is three feet across—and the plans are full size.

1. One Jetex "100" motor included in kit. 2. Die-cut plywood boom. 3. Preformed wire and tube fittings. 4. Die-cut rotor blades. 5 Metal motor clips. 6. Hub bushings. 7. Die-cut keel, formers. 8. Tissue covering. 9. Wire and gear. 10. Cockpit parts.



Cleveland's Cutlass

Scale model of Navy job is part of Simplex line

■ Following their new policy of full prefab in scale kits, Cleveland Model and Supply Co., Cleveland 2, Ohio, has introduced a line of low-cost jobs, all endowed with the authentic Cleveland scale realism. Termed the "Simplex" series, these kits are designed for ease and speed of construction, yet they embody the traditional former and stringer design used so long and successfully by this pioneer firm.

The line so far consists of three jet-style models of famed U. S. fighters—the Lockheed F-90, McDonnell Banshee, and Vought Cutlass. Other ships will be added, including several prop-driven types.

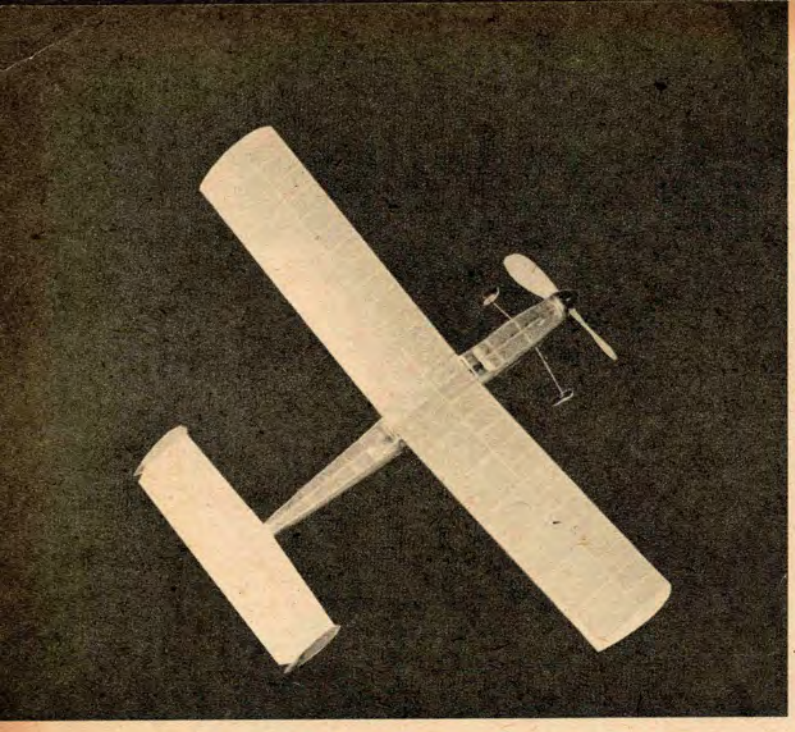
The 15" Cutlass which we have chosen is probably the least useful of the series as a flying model due to its odd shape and proportions, but for this very reason it is of special interest, as it makes a fine shelf model and is a real challenge to the experimentally inclined builder who can try flying it as a glider, or possibly with Jetex 50 power. The Simplex jet models are also ideal for swing or whip-power.

The kit is very complete with every sheet balsa part die-cut. The fuselage is constructed of two keel sections, an upper and lower, which are cemented together over the fuselage formers. This keel runs the full length of the model, and is, of course, slotted to receive the formers. The latter are die-cut to outline and for the keel. Stringer slots are printed on the formers. There are nine formers plus a turned balsa piece to finish off the nose.

The wing has shaped and notched leading and trailing edges, and die-cut ribs. For flying, 1" square paper tabs must be cemented to the after wing tips and bent up at a 45 deg. angle. As built, the wing should have no dihedral, but don't forget that sweepback such as this model has gives the effect of considerable dihedral.

The finish details supplied in the kit are insignia and numeral decals, and a molded bubble canopy.

1. Tissue covering. 2. Die-cut fins. 3. Die-cut fuselage formers. 4. Die-cut central keels. 5. Molded plastic canopy. 6. Die-cut ribs, tips. 7. Shaped, notched leading and trailing edges. 8. Formed wire gear, wheels. 9. Decal insignia. 10. Nose piece.



Top view of Payloader shows its ample wing area and good-size stab.

KIT PREVIEW:
PAYLOADER

Berkeley Models introduce brand-new type of PAA-Load flying via rubber-powered weightlifter

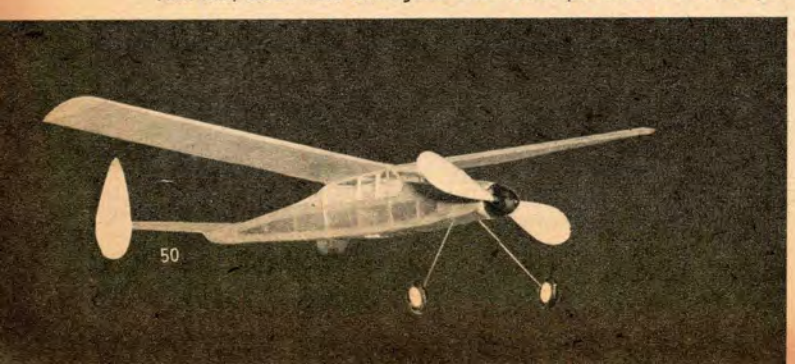
By WILLIAM L. EFFINGER, JR.

■ The terrific growing interest throughout the country in PAA-Load flying with gas engines during the past year has proven that model builders like the idea.

The thought occurred to George Gardner of Pan American World Airways—why not PAA-Load for rubber models? Almost simultaneously with his suggestion to me, a letter arrived from Dallas Sherman, the grand-pappy of PAA-Load, currently in Tokyo as Oriental Representative of Pan American. Dallas had already set up rules for PAA-Load rubber events in Japan.

The thinking was now well under way. I fired back at George Gardner with the suggestion: "Why not PAA-Load for everybody?" Develop a "one-design" model for school-yard contests. A model that would be small enough to be built inexpensively and turn in flights of about 30 seconds, using a plastic prop and carrying a payload of one-half ounce.

Twin fins, clean lines distinguish first rubber-powered PAA-Load job.



We tried to design a model that would not only fly but also look pretty. We added a plastic spinner, wheel parts, and twin rudders. For simplicity, sheet balsa fuselage sides and an all-balsa tail assembly were used. The wing design is neat and simple. False ribs keep the airfoil section efficient.

The design met with our flying expectations. Using four strands of ⅛" U.S. T-56 rubber winder wound, it was officially timed outdoors at 28 seconds. The time was identical with or without cargo! Outdoors the cargo seemed to stabilize the model in the gusty weather.

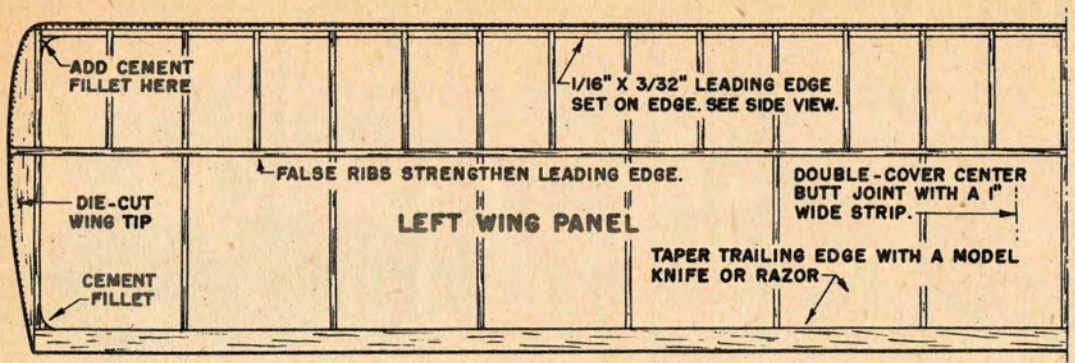
Payloader contests can be held most anywhere. Club members will have a lot of fun before or after meetings by having a contest as part of meetings. Needless to say, the *Payloader* makes an ideal schoolroom project for seventh- to ninth-graders.

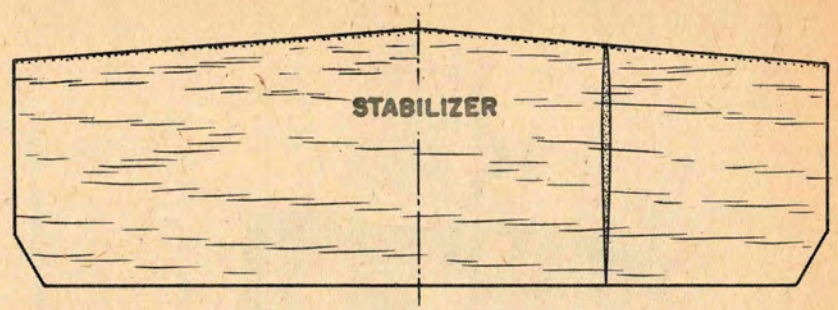
For those who want to build *Payloader* without purchasing a kit, we suggest you select medium light 1/16" balsa and sand to about 1/20" if no 1/20" stock is available. Construction is so straightforward that the plans can be considered self-explanatory. About all we need note here is that notches, indicated by the small black squares on the sides of the fuselage, are cut out to take the 1/16" square balsa cross members. The fuselage inside uprights are first glued to the fuselage sides, then the sides joined with the cross members. A strip of 1/16" square runs down the back of the fuselage center on the top. Roundness is given to the nose by sheet 1/16" stock on the top and bottom of the fuselage forward of the cabin . . . shape as shown.

Note the 1/16" x ¼" pieces that serve as fuselage cross members as well as landing gear mounts. Stabilizer wood sizes are the same as for the wing. Build the cabin exactly as shown to obtain the proper amount of wing incidence. Bore hole in dummy to permit passage of rubber or make legs ¼" square, ⅝" high.

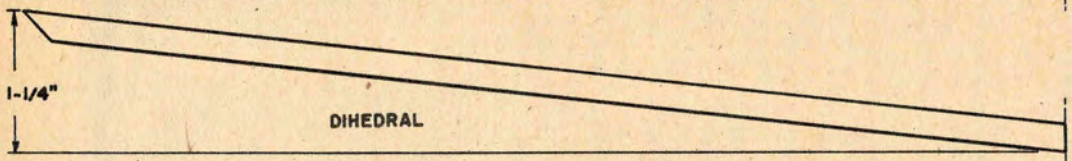
When flying the model, use four strands of ⅛" rubber. Naturally, stretching the rubber and using a winder will increase performance.

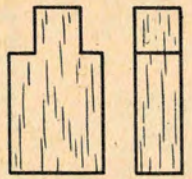
Start flying your *Payloader* soon. Try to hit 30 seconds consistently and you can take on competition with other *Payloaders*.


ADD CEMENT FILLET HERE
1/16" X 3/32" LEADING EDGE SET ON EDGE. SEE SIDE VIEW.
FALSE RIBS STRENGTHEN LEADING EDGE.
DOUBLE-COVER CENTER BUTT JOINT WITH A 1" WIDE STRIP.
DIE-CUT WING TIP
LEFT WING PANEL
TAPER TRAILING EDGE WITH A MODEL KNIFE OR RAZOR
CEMENT FILLET

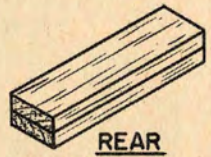


SAND STAB TO A STREAMLINED AIRFOIL AS SHOWN.

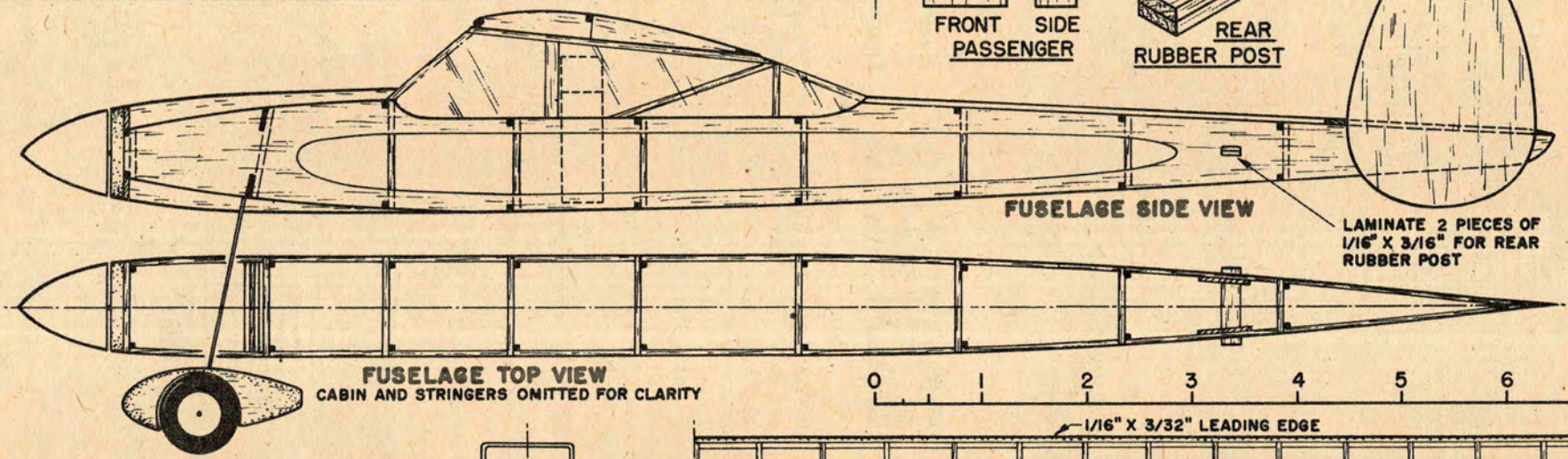




FRONT SIDE PASSENGER

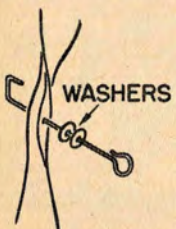


REAR RUBBER POST

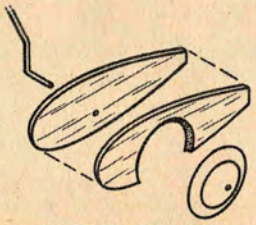


FUSELAGE TOP VIEW
CABIN AND STRINGERS OMITTED FOR CLARITY

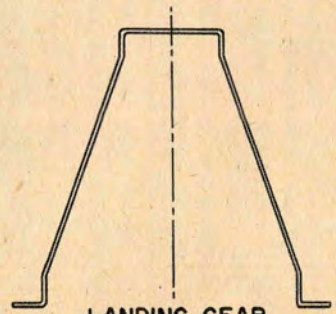
RETAIN WHEEL WITH CEMENT DROP



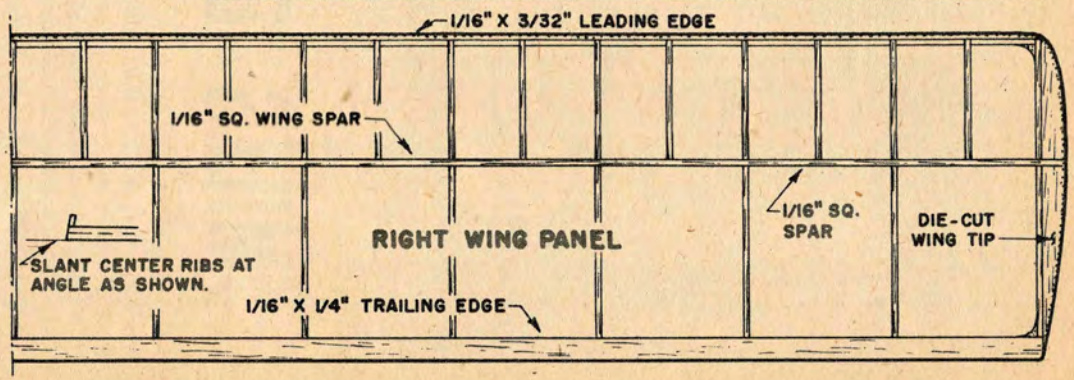
PROPELLER HOOK

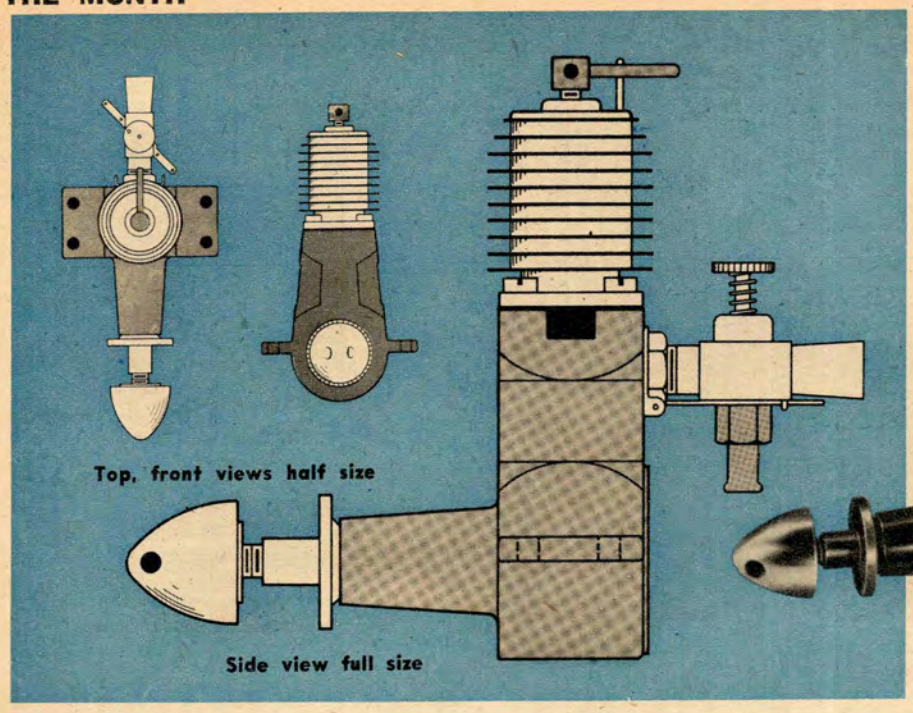


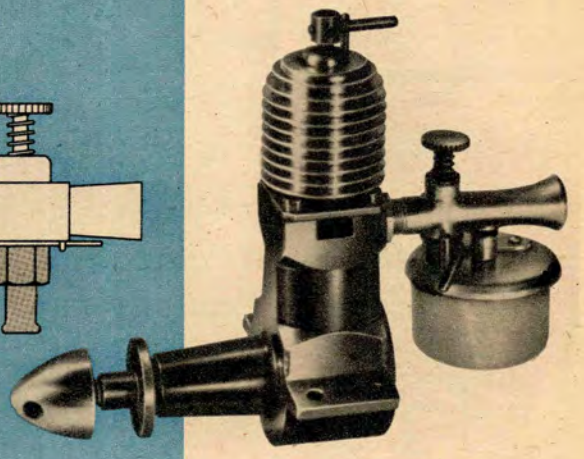
WHEEL PANTS DETAIL



LANDING GEAR WIRE


1/16" X 3/32" LEADING EDGE
1/16" SQ. WING SPAR
1/16" SQ. SPAR
DIE-CUT WING TIP
RIGHT WING PANEL
SLANT CENTER RIBS AT ANGLE AS SHOWN.
1/16" X 1/4" TRAILING EDGE





.08 cu. in./1.3 cc.

MILLS "BROTHERS"

Meet a couple of husky fellows from England; new diesels pack real power

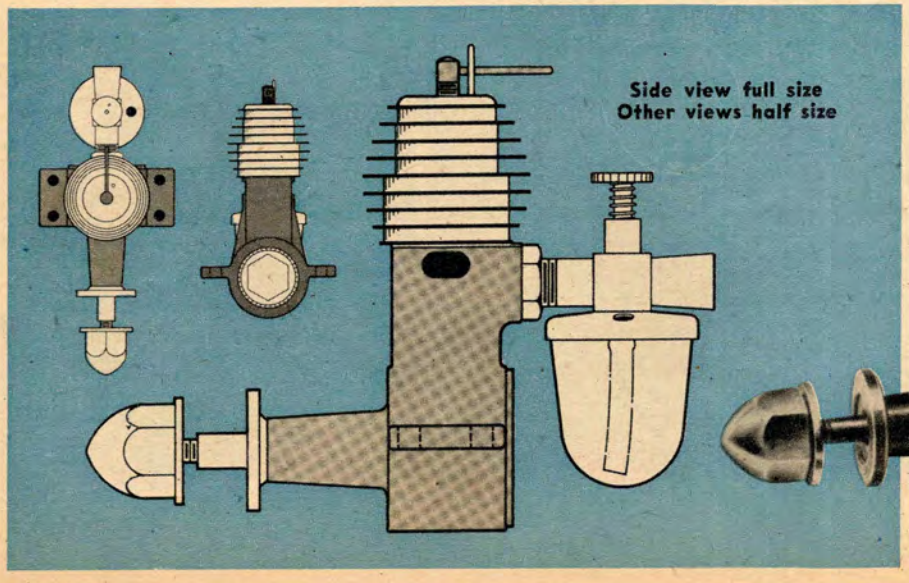
■ Since the end of the last war model engines have taken a turn to glow plug and smaller sizes in the United States, with Half-A's becoming quite popular. During this same time the model world in Europe and England has been developing small diesel engines. This trend started during the war when copper wire and other necessary parts for ignition systems were not available. After the war the model industries of the continent and England picked up the diesel and have produced small engines equivalent to the very popular American Half-A.

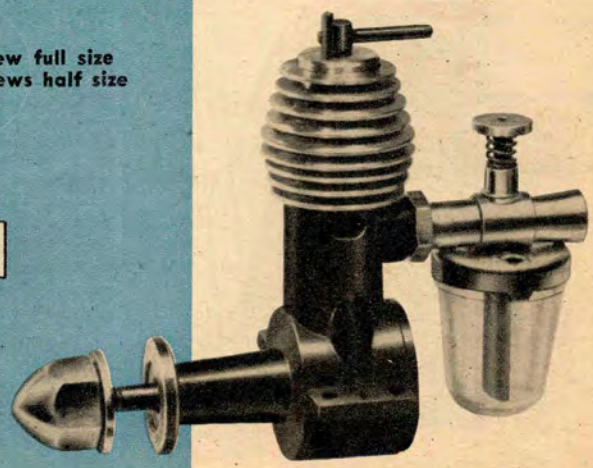
Until recently most diesels were considered to be slow-speed engines; but several short-stroke, high-speed diesels have appeared in England. The Mills .75 and 1.3 cc. engines fall in the medium speed class and feature easy starting and long engine life.

In general, diesel engines are heavier for their power than a glow plug engine. However, there are many applications where the diesel has definite advantages. Control line scale and sport flyers attempting to produce good looking models have had a terrific problem with paint ever since the introduction of glow fuel.

Diesel engines run on a mixture of oil and ether which has no effect on the old nitrate dope. This means a model can be surfaced with talc and dope and finished with colored dope, then powered with a small diesel engine to avoid the necessity of ruining a good finish with fuel proofer.

Free flight modelers would also be interested in these small diesels since they develop (*Continued on page 68*)





.045 cu. in./.75 cc.

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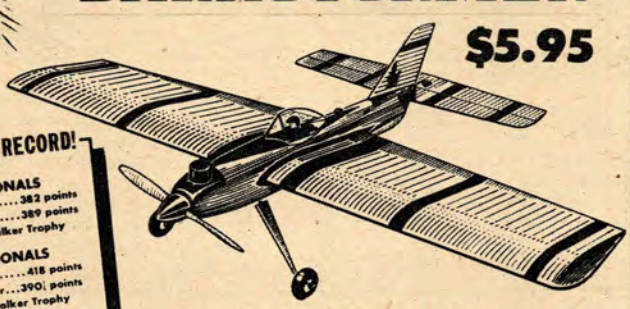

Check THE RECORD!

1951 NATIONALS
Open event winner....382 points
Senior event winner....389 points
Awarded Jim Walker Trophy

1950 NATIONALS
Open event winner....418 points
Senior event winner....390½ points
Awarded Jim Walker Trophy

designed by *Lou Andrews*

1950 NATIONAL OPEN STUNT CHAMPION
1948 INTERNATIONAL OPEN STUNT CHAMPION

BARNSTORMER SPECIFICATIONS

Wing Span	47 in.	Weight	approx. 26 oz.
Wing area	470 sq. in.	Speed	60 to 75 M.P.H.
Length	30⅞ in.	Engine	.23 to .35 disp.

ALL PARTS COMPLETELY PRE-FABRICATED

First in '50...now first in '51

Baby BARNSTORMER

CLASS 1/2A CONTROL LINE STUNT MODEL

$2.95

A JUNIOR VERSION OF THE STUNT CHAMPION BARNSTORMER

The ideal stunt ship for ½A enthusiasts. Designed and tested by Lou Andrews, the "Baby" will do all the stunt patterns in the book — a real feat for a ship of this size. Wonderfully easy to build because the parts are accurately die-cut and ready for assembly. Recent tests of the Baby Barnstormer have been conducted by a staff member of Model Airplane News and the stunt performance of this ship was warmly endorsed in a feature article in the August issue.

SPECIFICATIONS

Wing Span	23½ in.
Wing Area	118 sq. in.
Length	15⅝ in.
Weight	approx. 4½ oz.
Engine	.035 to .049 disp.

Another fine TRIXTER gas model

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BOEING B-29 SUPERFORTRESS

CURTISS P-40 WARHAWK

(Jet)
REPUBLIC F-84 THUNDERJET

N. A. P-51 MUSTANG

TRANSPORT

SIKORSKY H-5

LOCKHEED C-69 CONSTELLATION

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LOCKHEED F-80 SHOOTING STAR

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VOUGHT F7U CUTLASS

(Jet)
N. A. B-45 TORNADO

(Jet)
NORTHROP -89 SCORPION

(Jet)
RUSSIAN MIG-15

(Jet)
BOEING B-47 STRATOJET

(Jet)
GRUMMAN F9F PANTHER

LOCKHEED P-38 LIGHTNING

(Jet)
N. A. F-86 SABRE

REPUBLIC P-47 THUNDERBOLT

VOUGHT F4U-1 CORSAIR

EASY ASSEMBLY — NO DIFFICULT CARVING!

PAUL K. GUILLOW, WAKEFIELD, MASS.

GUILLOW'S **MODEL AIRCRAFT**

AIR YOUTH TODAY. AIR LEADERS TOMORROW

Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

■ One of the most amazing meet recording jobs ever has been carried out by officials of the last Plymouth International contest under the direction of the meet manager, Warren E. Bartlett. To our knowledge for the first time a complete analysis has been made of all entries in all classes as to number of flyers, number of flights and percentage of entrants who actually flew —the last is a big bone of contention with many contest officials.

If we weren't so pressed for space we might consider running the entire chart as prepared by the Plymouth folks. But here are some of the highlights of special interest to meet goers. Out of 514 entrants, 497 made official flights in one or more events. Exactly 117 entered control line events only; 107 confined their activities to free flight (gas, rubber, glider). Two hundred and ninety Plymouth flyers entered both C/L and F/F. It's good to see that more fly in all types of events than confine their participation to a single field.

Note this: 1,554 entries were made in control line events, while only 1,335 were registered in free flight. But hear this—there were 5 free flight events and 10 line categories! So maybe that F/F turnout is more impressive than you at first imagined.

(Anyone who has worked around a contest will appreciate how exciting figures such as these can be. For years we've been attending meets—many good meets—but when the day's flying was over and the prizes were awarded, just try to find out anything about number of entries, etc.)

Here is some amazing data. If you've never been to a contest it's just a bunch of figures. But if you know your way around the meet circles you'll wonder like us what happens to some of these guys (or their models) between the time they sign up for an event, have their ships processed and take an official flight. Consider, for example:

Event	Total pre-meet entries	Number processing	Number who flew officially
Outdoor rubber	214	136	123
H/L Glider	283	214	155
Half-A F/F	351	257	234
Class A F/F	273	180	146
Class BC F/F	214	142	113
Class A speed	230	154	122
Class B speed	226	127	121
Class CD speed	166	127	125
Jet speed	85	68	56
C/L Stunt	238	169	136
C/L Scale	97	50	43
Team racing	110	34	32
Navy Carrier	48	9	8
Combat AB	177	97	77
Combat CD	177	65	56

We put that "number processing" column in there to give you a chance to compare it with the "number who flew officially." Do you see the big point we want to make? All too many modelers are smearing their models and getting unofficial flights only. Note that 68 jet jobs were weighed in by the processing teams and 56 got into the air. That's better than 82%—right? Then check that with outdoor hand-launched gliders, an event most of us figure we could easily rack up time in without too much trouble. Only 155 got any time worth recording after 214 were okayed for official flights! That's less than 73%. What, oh, what happened to the other 27%—shed wings, looped into runway?

The best performance record was racked up by the large speed models. Almost everyone who cleared through the processing lines for an official flight managed to get some time on the watch. It all adds up to one of the two following contentions: control line flying is easier than free flight; or, control line flyers are more skilled than free flighters. You paid your 35c, so take your choice.

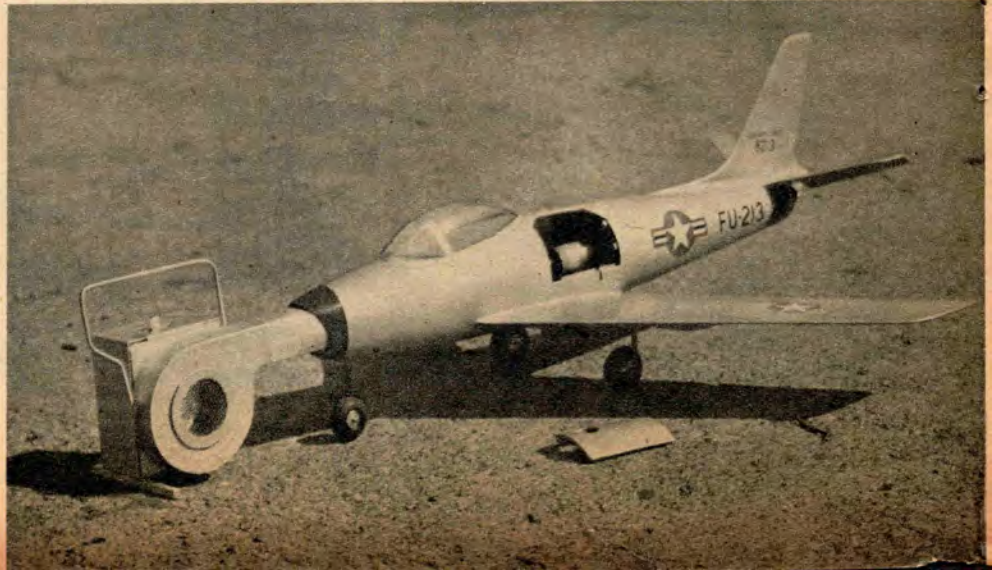
Headin' South, Suh? Get those model boxes packed, men, we're on our way to Orlando, Florida. What, you haven't heard? The big second annual Tangerine International Mid-Winter Model Airplane meet presented by the Exchange Club of Orlando is scheduled for December 28, 29, 30. And the prizes? Just 163 trophies! What events? Man, everything you ever flew outdoors and maybe some you never heard of yet. F/F, C/L stunt and speed, Wakefield, Flying scale rubber, Unlimited rubber, gliders, R/C and Half-A speed. For Half-A, Tom Mickler, president of the meet group and contest director, reports rules are: all general regulations governing any Ukie event; 20 foot lines, .006 in. diameter; engine less than .05; must fly seven laps (1/6th mile), pull test.

More info and application blanks? T.I.M-W.M.A.M., Box 123, Orlando, Fla. (You might have been polite and waited until we finished our little report before asking . . .)

The contest will be run off at the Pinecastle Air Force Base just nine miles from the city. Spotter planes will be available for free flighters. Plenty of runways for U/C—two are more than 10,000 feet in length! Barracks accommodations for young gentleman contestants at base for 25c per night. Meals on base for 35c each. Trophies will go to the first three places in each of the 18 events. Junior, senior and open classes in most of the events. And a Meet Queen, men—gorgeous Diane Forshay. Well, don't sit there—get that request for an application blank in the mail today.

Far East Flying. TACHIKAWA AIR BASE, FAR EAST AIR FORCE.—More than 200 cheering fans were on hand for the conclusion of the five-day all-Japan-Korea model airplane meet at Tachikawa AB. Sponsored by the 314th Air Division, the meet featured a variety of events for service personnel. As the PIO put it, "Classy colored jets,

Neatest trick of the month. Testor's F-86 Sabre by William M. Allison, Dayton, Ohio. Jetex #100 powers job which flies on 22' lines. Motor exhausts through rolled aluminum foil tube ¾" diam. Blower is battery powered job for cooling engine after landings. Wt., under 6 oz.



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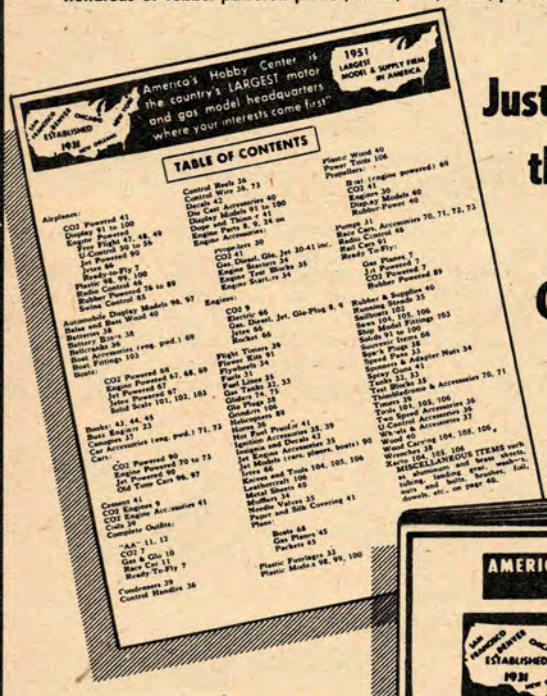
PLUS thousands — yes thousands, of model supplies and accessories from basic items such as balsa, cement and dope, to such specialties as mufflers, tachometers, etc.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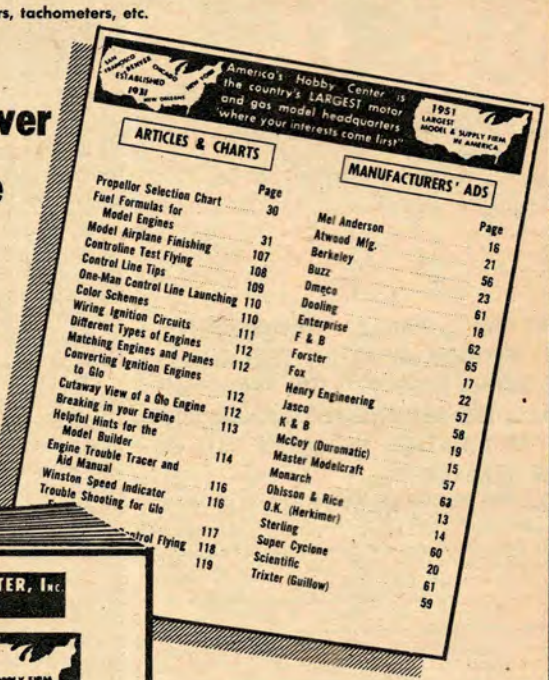
Just look over this table of Contents !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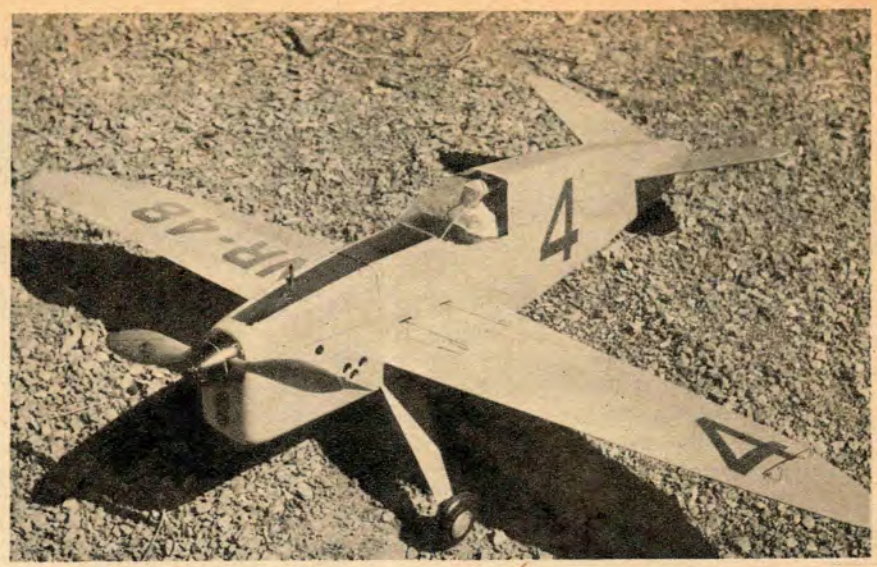

Nice Canadian entry! "The Fastwin" is 23 oz. team racer by Rene De Guire, St. Dorothee, Quebec. Original; span is 28 inches. Fuselage is 26 inches and wing area adds up to 128 square in. Power is Forster .29G. Top speed, 78 mph. All yellow, green Trim-Film.

looping stunters, beautiful miniature scale models, novelty (stunt?) craft, and rubber powered models made up the array of fine craftsmanship brought to the tournament by 100 odd contestants."

(We always knew modelers were odd, but *we* never admit it in print.)

So successful was the AF meet, plans have already been laid to hold a similar tournament in the near future with records established at the Tachikawa meet being used as yardsticks. Acclaimed by judges and spectators as the meet's outstanding entry was Capt. H. C. Lyons, Ashiya AFB entry (home, John Bay, Ore.) who collected top individual points with three first-place trophies. His Class B speed of 118 mph took first on a first flight. After wrecking his entry in the Special "A" class event for Japanese-made engines, Capt. Lyons built another plane and copped first in that category with a speed of 93.17 mph. He then went on to win the stunt competition with a total of 344.6 points, just 1.3 points ahead of M/Sgt. H. G. Knickerbocker, usually of Clearfield, Utah, but right now from Itazuke AFB.

Entrants from the Yokota AFB took team honors by collecting 70 points with a first, 4 seconds, and 3 third-place trophies. The YAFB boys were also honored when member S/Sgt. William R. Winters received a special trophy for capturing 20 of the team's points by wins in the novelty (could that be stunt or maybe unusual models of any type?) class and 3rd in Class B speed.

Flying over Leech Lake in Minnesota is Richard Brundige's Half-A seaplane. Power is Wasp. It's pictures like this that lift us!

West Coaster Bill Daniels gently launches his huge Torp .29 powered job. Ship is beautiful flyer with smooth glide, reports Dick Everett.

Following the tournament, a banquet was given in honor of those participating. Principal speaker was Lt. Col. John M. Miller (New York City), who is the assistant Director of Personnel Services for the Far East Air Force. Col. Miller later presented trophies to winning contestants.

Besides Capt. Lyons and S/Sgt. Winters, first place victors included Cpl. Julian Fitzgerald, Tachikawa, flying scale; Sgt. Bryan Parrish, Itazuke, jet speed; Lt. Norman Gibson, Tach., Class A speed; Pfc. Richard Agnew, Class D speed; Pfc. Jerome L. Asner, FEAMCOM, Class A speed; and Sgt. John H. Orth, FEAMCOM, rubber power flying.

Among the many outstanding scale craft which competed were a twin engine B-26 (current type) entered by S/Sgt. Myrle Replogle from San Antonio, Texas; an F-51 flown by S/Sgt. Leonard Hill, Indianapolis, Ind.; an extremely large P-38 team entry which required 1½ (*Continued on page* 80)

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Those of you who have built "IT" kits in the past will really take to the "Simplex" kits too, as they carry the ideal of realism and flight engineering into the realm of prefabrication. Simplex models are much bigger than the spans (15 to 20") imply, as their fuselages are huge compared to the spans.

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We have already been asked for more designs, so here they are — the snappy Luscombe Sedan, the famous F-86 Sabre jet fighter, and the perky Bonanza. We think you will like them even more than you liked the first sets. The Sabre is a whiz to assemble, being constructed of a little more than a dozen parts, and it makes long, sweeping, stable glides when hand launched, looking for all the world like a real Sabre. The Sedan and Bonanza are rubber powered, (all Quicky sets except jets now include rubber). All you need is a batch of Cleveland "Quicky" sets (get them all — you won't regret it) and a tube of cement.

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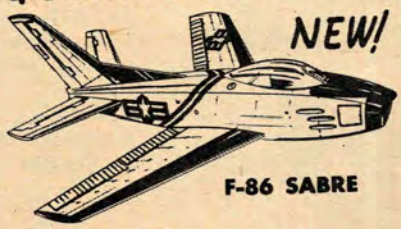

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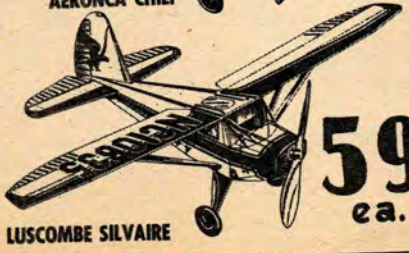

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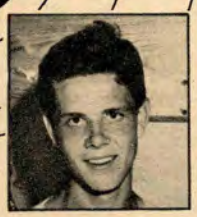
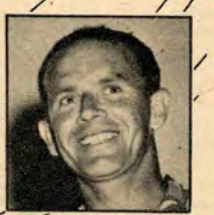


Jack McComb
Columbia, Missouri
1st in Senior Free Flight
Gas Class AA
15 min. 7.6 sec.
Wasp .049; Fubar 36
6-4 Top Flite



Dick Everett
San Diego, California
1st in Open Free Flight
Gas Class AA
22 min. 4 sec.
Torp. .049; Original Design
6-3 Top Flite

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R/C at Nats

(*Continued from page 41*)

Of course, at this meet, as at most others, the R/C event was placed far out on the field. It must be, to allow room for take-offs and spot landing approaches, cross country flights and other maneuvers. Nor do the R/C boys wish to be located next door to the screaming yo-yos, or to free flight and have roaring gassies diving in on them, in addition to their other problems. Yet, as we have said, most active R/C flyers enter radio after having seen the R/C jobs in action. If they don't see 'em their interest may not be sufficiently aroused. *All right, you R/C pioneers, how can we lay out our events in these big meets so that our R/C antics can be enjoyed by all?*

There was a goodly collection of original designs at Dallas, though old standbys like the *Hoosier Hotshot*, *Rudderbug* (with many variations) and *Radart*, and other magazine designs or kit jobs accounted for half the total. As has been observed at other meets this year, the trend to hotter, more heavily loaded ships is increasing. Also, there were several small ships in use, the tiniest being Bob Lutker's 36 incher, with 325 sq. in. and wing loading of 14.2 oz. per square foot. Two of the top five place men, Bill Butler and Wayne Schindler, had planes of 380 sq. in. and 450 sq. in. respectively, which should prove to the doubters that giants are no longer a necessity in R/C.

Wing loadings ran all the way from 9.7 to 25 oz.; it wasn't the tiny ships that had the highest loadings, however. Gene Foxworthy's 48" span, two-thirds-size *Hoosier Hotshot* weighs only 28 oz. for an 11.6 oz. wing loading, even though it carries the somewhat heavier MacNabb receiver. It was a sweet flyer, and many of us were disappointed that Gene couldn't be a contestant—it would have been interesting to have seen a ship of this size, flown by an experienced pilot, in competition with the average 5½ to 6 ft. jobs, also flown by contest-wise operators.

In order to get their ships to R.O.G. well—and thus pick up quite a few extra points—many builders are shifting their wheels rearward. After all, the only reason we have been putting our wheels out under the prop is because this is general free flight practice. However, the farther back the wheels are set, the less tendency the plane has to groundloop; wheels—on two-wheel and skid layouts—are getting back under the leading edge of the wing, as in full-size plane practice.

Again departing from free flight contest design practice, noses are being lengthened. This trend is noticed on such ships as McElwee's *Robot* and Bonner's much modified *Rudderbug*. Mac settled on the much longer nose (over the short one on his older *Radart*) because he found it helped smooth out turns. Presumably Bonner found the same advantage, for his ship looked very sweet-handling and his 222 points are proof, if any is needed.

One thing was a real disappointment—the Navy Bomb-dropping Event. There were only a handful of entries. Most flyers hadn't even thought about it before they reached Dallas; a few made frantic last-minute attempts to rig up a dropping gimmick, but with little success. Won by Cliff Schaible; Fran McElwee was second, and Jim Walker third. That pretty nearly covers the field of entrants. *Why?* Here is an event with simple rules. It requires R.O.G. ability, but you can help the ship off without loss of points.

McElwee's "catapult" (a rubber "motor" with one end spiked to the runway) did the job in the simplest fashion. Many R/C flyers already have the required spot landing ability, and the only other requirement is to drop bombs. This can be done by thermal switches, escapements, etc. The electrical end of Howard Bonner's 2-speed motor system, detailed in a recent R/C column,

would be a natural for bomb release.

It seems to us there was no real push to interest the flyers in this Navy Event; rules sheets weren't available until several days after the meet started—there was no ballyhoo at all. Too bad, because those who won the Navy-sponsored events last year claim that Carrier Trip was really *something*.

Well, that was the R/C Event—swell weather, not many entrants, but lots of good flying, heavier, faster ships, plenty of Citizens Band use, loving attention from F.C.C. What will the pattern be in '52?

R/C Statistics

(*Continued from page 39*)

Cooke, George H., 30-3, W2LOP, Roselle Park, N. J., Guided Missiles; Cavalier 60 with 70" wing; McCoy .19 with 9/6 prop, gravity feed tank; pulse motor on rudder; orig. rec., RK61; trans. Bliley CCO2, 6AG7 tube, 5 watts; folded dipole ant.

Crisp, L. D., W9VLF, 33-3, Perrysville, Ind., Sad Scoopers; orig. plane with 'Bug-type wing and stab. 78" span, 864 sq. in. area; 68 oz., 11.3 oz. wing loading; McCoy .29 with 12/4 prop and stunt tank; esc. for rudder and engine speed; MacNabb rec. and trans.; contacts on esc. operate motor.

Curry, John T., 42-1, Manhattan Beach, Cal.; Super Brigadier with straight dihedral and radial motor mount; 58" span; O&R .19; Bonner esc. on rudder; MacNabb rec. and trans.; ship lost on test flight.

Foxworthy, E. R., 30-12, Indianapolis, Ind.; 2/3 standard size Hoosier Hotshot; 48" span, 350 sq. in. area; 28 oz., 11.6 oz. wing loading; Arden 099; esc. on rudder; MacNabb rec. and trans.; did not compete—directed R/C Event.

Gabbert, Gordon, W5SVI, 32-3, Dallas, Tex., Dallas Gas M. C.; Radart with trike gear and longer nose; 60" span, 576 sq. in. area; 88 oz., 22 oz. wing loading; Forster .29 with 12/6 prop; audio tone for rudder, elevator, motor and bomb drop; Rockwood 5-channel rec., 3 tubes; Rockwood 5-channel trans., 1T4 tubes, 1 watt; ground plane ant; E. D. clockwork esc. on rudder and elev., Bonner esc. on motor, Rockwood control box.

Harter, Walter E., 33-6 mo, Belleville, Ill., Belleville Model Men; orig. plane, 60" span, 64 oz.; Arden 199 with 11/4 prop; Owbridge Motorudder for rudder and motor speed; MacNabb rec. and trans.; untested ship, did not fly.

Kemp, C. L., 29-1, Dallas, Tex.; Rudderbug; 74" span, 850 sq. in. area; 112 oz., 19 oz. wing loading; Drone .29 Diesel with 12/4 prop; esc. for rudder; Aerotrol rec., XFG-1, Aerotrol trans., 3A5, 3 watts; folded dipole ant.; did not fly.

Lutker, Bob, 22-1, Fort Worth, Tex., Cowtown Sahibs; orig. plane; 36" span, 325 sq. in. area; 32 oz., 14.2 oz. wing loading; Arden .099 with 10/3½ prop; esc. on rudder; Control Research rec., RK61; Beacon trans., 3A5, 3 watts; folded dipole ant.; ham operated trans. at Bob's direction.

McCullough, Claude, 29-6, Ottumwa, Iowa, Hornet R. C. Model Club; orig. plane; 66" span, 800 sq. in. area; 96 oz., 17.3 oz. wing loading; O&R 33 with 11/4 prop; Trammell actuator on rudder, 2-speed motor control; MacNabb rec. and trans., cam pulser; 4-wheel l.g., brand-new ship, did not fly.

McElwee, Fran, 32-3½, South Plainfield, N. J., Guided Missiles; Robot, 60" span, 576 sq. in. area; 68 oz., 17 oz. wing loading; McCoy .19 with 9/4 prop, Walker pressure tank and regulator; Aerotrol esc. on rudder; MacNabb rec. and trans.

MacNabb, Vernon C., 48-3, Indianapolis, Ind.; Hoosier Hotshot, 72" span, 840 sq. in. area; Delong engine with 11/8 prop; esc. on twin rudders; MacNabb rec. and trans.; beep box fastened to trans. case.

Miller, Frank W., 38-11, Midland, Tex.; orig. plane, 60" span, 660 sq. in. area; 56 oz., 12.2 oz. wing loading; K&B Torp .29 with 11/4 prop; esc. on twin rudders; Control Research rec., RK61, orig. trans., 6N7, 10 watts; folded dipole antenna.

Miller, R. L., 62-1, Midland, Tex.; Schumacher "Little Ship," 44" span, 350 sq. in. area; 23½ oz., 9.7 oz. wing loading; Arden .099

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with 9/3½ prop; esc. on rudder; Aerotrol type rec., RK61, orig. trans., 6N7, 10 watts; folded dipole antenna; did not fly.

Oberthier, J. B., 42-2, Plainview, Tex.; Sky Dusters; Rudderbug with spring-hinged nose wheel; 74" span, 850 sq. in. area; 84 oz., 14.2 oz. wing loading; O&R .33 with 12/4 prop; esc. on rudder; MacNabb rec. and trans.

Quermann, J. K., W5QKR, 30-1, Dallas, Tex.; Cliff Model Club; orig. plane, 60" span, 600 sq. in. area; Delong engine; actuators on rudder and elevator; Aerotrol rec., XFG-1, Aerotrol trans., 3A5, 3 watts; dipole ant.; pulse box; proportional on both rudder and elev.; ship not finished.

Quermann, T. R., W2ZRT, ?-3, Floral Park, N. Y.; Prop Spinners; orig. plane, 60" span, 600 sq. in. area; 52 oz., 12.5 oz. wing loading; K&B Torp .29 with 11/6 prop; actuator on rudder; orig. rec., RK61, orig. trans., 3A5, 5 watts; vert. whip ant.; electronic pulser.

Ruffin, James A., 36-5, Thomaston, Ga.; orig. plane, 84" span, 1008 sq. in. area; 176 oz., 25.1 oz. wing loading; O&R 60, spark eng.; 2-channel RF, esc. on rudder, elevator and engine; own rec., Beacon type, 3A5, own trans., Beacon type, 2-channel, 3A5, 1 watt, folded dipole.

Schaible, Clifford W., W2CCT, 18-2, Roselle Park, N. J.; Guided Missiles; orig. plane, 78" span, 792 sq. in. area; 72 oz., 13.1 oz. wing loading; Forster 305 with 11/6 prop; esc. on rudder and trap door; Aerotrol rec., XFG1, Aerotrol trans., 3A5, 3 watts; folded dipole.

Schindler, Wayne A., 31-2, Los Angeles, Cal.; Thermal Thumbers; orig. plane, 50" span, 450 sq. in. area; 56 oz., 18 oz. wing loading; Bantam .19 with 9/6 prop; Bonner esc. on rudder; MacNabb rec. and trans.

Schmidt, Frank P., W3WF, 52-15, Erie, Pa., orig. plane, 56" span, 461 sq. in. area; 54 oz., 17 oz. wing loading; K&B .19 with 11/6 prop and Walker pressure tank; esc. on rudder; MacNabb rec. and trans; cracked up during test flight.

Siegfried, Charles H., WSU, 59-15, Wichita, Kans.; orig. plane, 132" span, 1584 sq. in. area; 230 oz., 20.9 oz. wing loading; Forster .99 with 18" prop, spark ign.; rotary selector and motor servos on rudder, elev., motor, and brakes; own rec., RK61, own trans., 2E26 tube, 35 watts; vert. ant.; telephone dial; had working wheel brakes.

Thomas, H. A., 37-½, Little Rock, Ark.; orig. plane, 62" span, 510 sq. in. area; 52 oz., 14.7 oz. wing loading; Arden .199 with 10/4 prop; Rudevator; Control Research rec., RK61, Control Research trans., 3A5; 3 watts, vert. ant.; 4-point control switch; did not fly.

Tyler, M/Sgt. Ernie, 25-4, Northumberland, Pa.; MI special, 66" span, 700 sq. in. area; 80 oz., 16.5 oz. wing loading; Arden .199 with 12/5 prop, stunt tank; esc. on rudder; Aerotrol type rec., XFG1, Beacon type trans., 3A5, 1 watt; folded dipole.

Walker, Jim, W7JQQ, ?-13, Portland, Ore.; Fireballs; orig. plane, 84" span, 980 sq. in. area; 136 oz., 20.0 oz. wing loading; O&R .60, with 16" prop; Walker pressure tank and regulator; pos. position selector on rudder, elev. and engine; own rec., RK61-XFG1; own trans., 807, 40 watts; whip ant.; control stick and motor button.

Williams, Jack, 32-3, Ottumwa, Iowa; Hornets R/C model Club; Rudderbug with 2-wheel gear, 74" span, 850 sq. in. area; 118 oz., 20 oz. wing loading; O&R .29 with 11/4 prop; pulse on rudder and motor; MacNabb rec. and trans.; mech. pulser; motor speed changed by varying pulse rate.

Woodall, Wm. P., 37-5, Thomaston, Ga.; orig. plane, 72" span, 864 sq. in. area; 136 oz., 22.6 oz. wing loading; O&R .60, spark ign., 14/8 prop; esc. on rudder; Beacon rec., 3A5, orig. trans., 3A5, 1¼ watts; dipole.

York, Leon, 24-3, Midland, Tex.; Rudderbug, 74" span, 850 sq. in. area; O&R .199 with 10/4 prop; Bonner esc. on rudder; Beacon rec., 3A5; same transmitter as Frank Miller.

Small F/F

(*Continued from page 33*)

thrust." This is a better arrangement. The full force of the thrust is used along the flight path instead of being pointed "downward." Also, by having the thrust line 1" above the C.G. we can move the C.G. forward for greater stability, knowing that the high thrust

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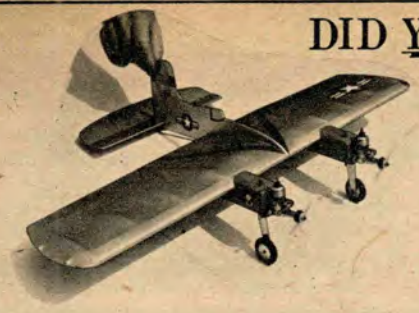

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line will balance the situation under power. These facts were proven during the tests flights.

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The next adjustment was to obtain a stalling glide. We did this by increasing incidence of the wing from 2 deg. to 3½ deg., and also left about minus 2 deg. in the stab. The power flight now was something we all like to see: A bit of a flat motion after release and then a swing into a 45 deg. climb that was absolutely steady. No tendency to loop or swing into a spiral. It also looked as though it could handle more power.

We had at least a dozen more flights afterwards. Every one had identical characteristics. Power flight straight ahead and upward. After power cut, the model would dip and pull up into a stalling left turn. Gradually the stalling tendency would smooth out and the model circle in a flat glide, and in circles tight enough to pick up thermals. And during all these flights we used the same prop.

We are not going to try to find out why the model had a left turn tendency, but you know how the built-in warps predetermine the flight characteristics, which is another reason why the model should have a bit of extra stability. And this extra stability can only be had by having the C.G. away from the trailing edge, and using the thrust line above the C.G. to counteract the looping or spiral tendencies of such C.G. designs. If you would like to see the results for yourself, have a try at the model.

(Those interested in more complete construction details of this month's winning design will find them on the full-size plans available.)

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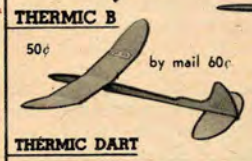

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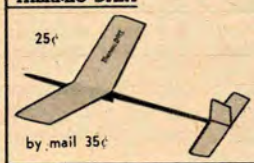

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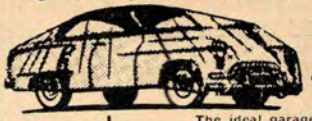

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■ The FAST Club has been working hard and diligently to perfect rules for Half-A team racers and have come up with the following specifications: minimum wing area 75 square inches; maximum engine displacement .05 cubic inches; maximum tank capacity ½ fluid ounce (.90 cubic in.); minimum cross section at cockpit 1¼ x 2½ inches; fixed landing gear; engine fully cowled, except for plug; line length 26 feet 3 inches, any kind of lines; no engine cut-off required; races to be for 2-4 models for distance of: 1 mile (32 laps), 2 miles (64 laps), 5 miles (160 laps). That's it.

Les McBrayer, who has been most active in developing these rules, states: "Frankly, we* are not offering this to become a national contest event, but rather as an event where modelers can have a lot of fun and learn the basic details of team racing by using less expensive and slower models. Also these ships would be swell for indoor flying through the bad-weather months in the east." (No bad weather in California.*)

Del Harbold's extremely neat "Wichihawks" job of 65 in. span, 500 sq. in. wing area. 6409 top section, constant curve on bottom.

It might be added that these rules were established only after numerous models were built and flown. These ranged from 25 to 150 square inches in area and weighed from 4 to 11 ounces. The final size selected gives good speeds and can have the right flight characteristics, so necessary to real team flying. Les' ship weighs nine ounces and averages over 45 mph, getting 116 laps on the ½ ounce fuel tank.

The thought of allowing the fellows to use any engine from .19 to .36 displacement in the contests for the remainder of the year is a good one, since it will give some indication on just how the different-size engines stack up against each other for a race such as this. It can be expected that the .36 jobs will go a little faster but on fewer laps per tank of fuel, likewise the .19 jobs will be a little slower but should go farther. The purpose of these contests is to attract more models and yet not give any one size of engine any particular advantage.

This seems like very good sound thinking; one thing for sure, the FAST Club has undoubtedly done as fine a job in developing team racing to its present popularity through carefully prepared rules, as is possible. Perhaps we will now see the Half-A jobs doing to team racing what the Continental Racers did to the National Air Races—that is, make team racing more popular than ever.

Fran Uyematsu with his elongated "Zeek"—16 inches have been added to wing center section, the fuselage and tail lengthened.

More clubs like this will mean better modeling for everyone.

Pop Robbers sends us word of the activities of the Western Associated Modelers.

This group is in many ways the most active in the country through their fine meetings and numerous contests. The meetings must be good as attested by Pop's mimeographed minutes. This is also a very hard working group, it seems, since the old saying that "everyone gripes about the stunt rules but nobody does anything about them," is a little false because they now have a committee of Jalmer Swenson, Les Perrings, Gail Eckstein, John Lenderman, Al Ennor and Al Funkner who are determined and bound to do something about them.

These fellows think that all the grief or differences in judging opinions are directly traceable to the many and varied interpretations of the rules as now written. This is one big job which will really be tough, and it will be interesting to see what the committee comes up with.

Pop has added a little question and answer (*Continued on page* 72)

Here's that famous beauty event winner Toshi Matsuda with one of his slick creations: stock "Zeek" with Aero Gloss finish.

*Editor's Note: This is the biased opinion of our Western correspondent.

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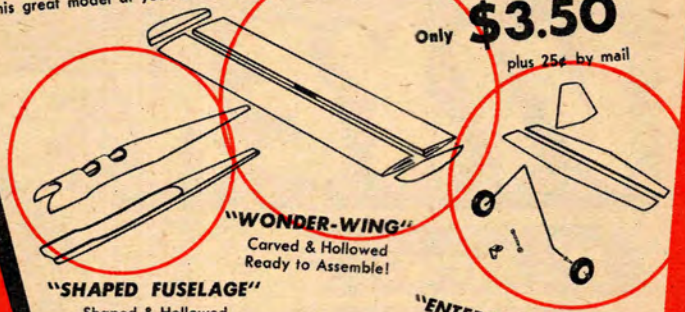

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■ The 10th birthday of Civil Air Patrol was on December 1st. Ten years ago, the civil airmen had been running a race against war, to organize so they and their planes could serve under discipline rather than be grounded as authorities then intended. The race was won by the signing of an order barely a week before Pearl Harbor, to establish CAP as the air arm of U.S. civil defense. Pilots and air enthusiasts in every state flocked to the new organization.

Today, as new dangers loom, CAP again is in a period of fast growth. Civil defense again is one of the motivating forces. At the end of the year, it was estimated that no less than 80,000 members were active—35,000 Seniors and 45,000 Cadets, in more than 1,300 units.

If the uptrend of the last few months continues and new impetus is gained from the defense program as expected, CAP in 1952 may pass all previous records for membership and activity.

This means the donation of millions of man-days of unpaid activity in the cause of air power, civil aviation, and defense in this country. Since Russia's program, by all accounts, is much larger—air youth training, private flying, and beyond—every aid is due to CAP, our only organization to do the job in the American way, and to do it better.

Membership is open to all good citizens, regardless of prior aviation experience or lack of it. Cadets may join from ages 14½ to 17 years inclusive. Senior members are 18 and over.

Your nearest airport or flight school should be able to tell you where the CAP unit for the area is located. If there is none, a Squadron or Flight may be formed by authority of the State Wing.

There are now more than 600 CAP Squadrons averaging about 35 Senior members each, 700 Flights averaging about 15. One or more Cadet units is attached to the typical Senior unit which flies lightplanes from the home airport.

More than 4,000 planes, including Air Force types and private aircraft owned by members, are registered for CAP use in emergency. A large percentage of the 60,000 flyable non-carrier civil aircraft actually could be used in time of need.

Women may join the flight and ground program on an equal basis with men. About one-eighth of the Senior and one-fifth of the Cadet members are female.

C. A. P. NEWS c/o Air Trails
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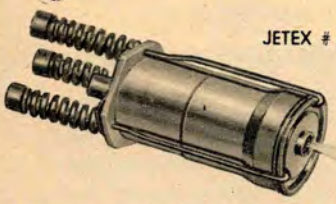

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CIVIL DEFENSE UNITS

New civil defense plans are boosting CAP. In the last war, since no enemy airplanes came, defense interest soon lagged. CAP won fame through active military missions against enemy submarines, in the tense days before the armed services were ready. Hence CAP became, and still is, an auxiliary of the Air Force.

Since the threat of attack unhappily now is not imaginary but real, CAP has returned to its original purpose in the forming of mobile units, with planes and rolling equipment, ready to take skilled teams of defense workers anywhere. An airborne unit can go in a few hours to any one of a number of likely targets. Hence, local organization even in the most remote areas is a practical contribution to total defense. CAP can recruit on that basis. And a recruit for CAP is a customer for local aviation.

So far, there are about 400 CAP mobile air support units. While much of the civil defense plan is on paper, what CAP has is real. The people, planes, autos, and trailers are there. Many spectacular maneuvers have been held.

An obstacle to progress here has been removed by a recent agreement between CAP and the Federal Civil Defense Administration. There was a natural reluctance among civil defense officials to rely on CAP aid since the Air Force presumably had prior call upon its civilian auxiliary.

The agreement provides that CAP may dedicate some of its units to give the State civil defense authorities control for training and emergency. While such units may serve on search and rescue, flood, fire, storm, or other missions, civil (*Con't on next page*)

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The Cadets are excluded from duties, such as observer on low-flying search missions, that might be unduly dangerous. Otherwise, they enjoy much the same privileges and training as the Senior members. Last summer, 5,000 of them went to camp at Air Force bases; flew in military planes; and lived the life of airmen. A few dozen others, selected by competition from the whole country, went on tours in the annual exchange of Cadets with 14 foreign nations.

Picked teams came to Washington for the national drill competition and the winners, from New York, were flown to Toronto for the international drill which was lost by a narrow margin to a Scottish team. Presumably the tussle for the Gen. Beau trophy will be held in Scotland next year.

At home, the Cadets engage in a year-round program of training in preflight and military subjects. The academic courses such as theory of flight are getting more and more into high schools, of which 228 already have entered the CAP coordinated program.

While CAP does not give flight training, a job for the private operators, the Cadets get frequent airplane rides for orientation. Many CAP units have raised scholarship funds to give flying lessons to the winners of local Cadet competitions. Experience in this country, matched by the study of foreign programs, shows that recruits pretrained by CAP have a great initial advantage over those who enter the air service without prior experience.

Blue Uniform

Since the war, CAP has continued to use the Army type uniform. But the Air Force blues have been authorized in a recent regulation. To distinguish CAP personnel from Air Force, a red and blue patch will be worn on the left breast with the words "Civil Air Patrol, USAF Auxiliary" in white letters.

Silver CAP letters and insignia also are prescribed. CAP pilots wear wings similar to those of the Air Force. At latest count, there were 12,000 rated CAP pilots and more than 2,000 with observer rating.

A closer tie with the Air Force Reserve is being considered to the mutual advantage of CAP and the Reservists. The latter, strangely enough, have no flying at all for this fiscal year and little in the way of training aids.

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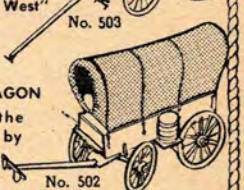

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CAP has aircraft and Link trainers, plus much other equipment. In an experimental program in the District of Columbia, an Air Reserve Squadron (which happens to be under this writer's command) is encouraging its pilot officers to join CAP so as to enjoy the benefits of the Reserve and CAP at the same time.

Since the table of organization for Civil Defense air units follows much the same pattern as the Air Force, Reserve, and CAP, the whole plan fits well into the defense pattern, so another layer of federal authority and support is thus added.

—KENDALL K. HOYT

Purdue

(*Continued from page* 31)

Partially cowled motor.

With this set of rules several club contests were held for the small planes. These contests were strongly contended by the many members participating.

For the past three years, interest has remained high in all features of these airplanes. Much progress has been made in perfecting the weak points of the little ships. The planes themselves have become more and more reliable. We have found that a small stab with the C.G. slightly ahead of the leading edge produces a very stable airplane. Not only have the planes become more stable, but the speeds have increased greatly.

During the first year, 55 mph was just about tops using Baby Spitfires and Cubs. Last year with quite a bit of careful work with Cubs and one or two powerful Spitfires, we were able to boost the speed up to 65 mph. The advent of the Wasp really blew the top off in the speed department. The first flight with a Wasp racked up 75 mph. Everyone was amazed, and thought perhaps that it was just an exceptionally good motor. Later, however, at the club contest another Wasp turned in a speed of 83 mph. Since then the record has been raised to 85 mph by the same engine.

As everyone knows, the propeller and the fuel are very important when you wish to obtain maximum speed. We have done a great deal of experimenting on these two. With Spitfires and Cubs, the 5/7 seemed to prove the most successful, while a 5/8 is best suited for the Wasp. Although we did a lot of hacking, carving, and sanding on the Tornadoes, we found that generally the top speeds were turned in with stock props.

As for the question of fuel, it was found that Ohlsson & Rice Half-A fuel quite satisfactorily fills the bill. A few of the home mixtures proved a little faster than this manufacturer's mix, but the difference was quite small.

The pylon which we used is quite similar to one shown in the previous "AT" article. The main difference is in the bearing and the materials used in construction. Instead of a wire bracket on the center post, we have found that a bracket of ball bearings serves very nicely. The ball bearings offer little resistance, and are quite cheap and easily obtained. An old bearing from a racing engine will serve adequately.

Also, for higher speeds balsa wood construction would not be recommended because at speeds of around 80 mph there is quite a bit of centrifugal force developed. We had some trouble at first in anchoring the pylon to the floor, but soon found that a bag of sand served the purpose and was easily transported.

For real thrills and excitement we found that you just cannot beat flying two of these small pylon planes at once. In this way it is possible to have a really good race, instead of just flying aginst the clock. All required to fly two at once is a double set of ball bearings on the pylon, and two lines, one a little longer than the other. A slight difference in the line length is necessary to prevent the models from making contact in case of midair collisions.

Actual Photograph of model built from Kit B-3—Length 19" Beam 5"

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Mills Brothers

(*Continued from page 52*)

high torque and will turn a large propeller at moderate speeds. The tests on these engines show a 9" fuel level test without knocking or great loss of power, indicating that they will run steady enough to perform the full A.M.A. stunt maneuvers without difficulty.

Both the .75 and 1.3 cc. Mills engines have similar internal construction. Information available on the 1.3 cc. will serve as an example. The cylinder is a separate sleeve machined from steel with a nitrogen-hardened surface. The piston is made of tool steel, hardened and ground. This combination of piston and cylinder materials, along with great accuracy in fitting, makes the engine capable of running at high speed under the high compression encountered in a diesel without the rapid wear experienced in so many early diesel engines.

An aluminum cylinder head covers the top and sides of the cylinder around the combustion area above the ports. This keeps the cylinder operating at an even temperature and overcomes any difficulty caused by unequal expansion of the piston and cylinder. A small adjusting screw in the cylinder head contacts the contra piston in the top of the cylinder to vary the compression ratio. The cylinder assembly is held to the base by four screws. The crankshaft is assembled through the back of the base casting similar to most American engines. The shaft is hardened and ground on the main bearing and crankpin bearing surfaces.

A special carburetor is featured on the larger engine. The center of the carburetor has a shaft running through its center with a drilled hole similar to a stop-cock or shut-off valve. The needle valve is built in the center of the rotating valve with a construction similar to that used on the McCoy Red Head racing engine. Turning this throttle shaft partly closed reduces the amount of air entering the carburetor and also cuts off the amount of air and fuel mixture entering the engine. This arrangement provides a more constant air-fuel mixture than a simple choke on throttle. The throttle is recommended for use in free flight or radio control models and can also be used as an engine speed control device in control line flying.

Successful operation of model diesel engines depends greatly on the fuel employed. The manufacturer recommends a mixture of one part #40 engine oil, one part diesel truck fuel, and one part ether. Articles printed in English publications, with regard to diesel engines, recommend a fuel using 10 to 20 percent #70 lubricating oil with approximately equal parts of diesel fuel and ether. Experimenting with these various mixtures showed that heavy oil caused difficulty in starting the small engines by forming a film on the cylinder wall and top of the piston.

Best results were obtained with one part #20 motor oil mixed with two parts ether. This is an old formula worked out for the Drone diesel engines when they came on the market. The light oil blows out of the combustion chamber and does not build up in the base as fast as heavy mixtures. The engine is also less sensitive to changes in rate of fuel flow when using this mixture.

After several hours of experimenting some important rules were developed that eliminated starting difficulties. The needle valve and compression setting must be quite accurate and should not be altered due to failure to start. The compression setting can be left at the point where the engine develops maximum speed and runs steady. The needle valve setting for easy starting can be best determined while the engine is running. Adjust the mixture for maximum engine speed, then open until a

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slight decrease in rpm is noticed. After these adjustments have been determined they can be left pre-set for starting and flying.

When the engine has not been operated for several days a residue of heavy oil collects in the carburetor and inside the engine. To start the engine in this condition, choke twice and flip until it kicks over or starts. Do not choke again until the popping stops completely. If the engine fails to start, choke once and continue to flip. If the engine has been running recently and is still slightly warm, one choke and no more should be used.

With a cold engine several bursts of power will occur without starting. This is due to oil in the carburetor and inside the engine, so do not change the compression setting or needle valve adjustment. After three or four bursts the engine will catch and then continue to run.

When the engine has been running and is quite hot, it is nearly impossible to start. Attempts to do so usually result in overchoking and the heat evaporates all the excess ether, leaving only oil inside the engine. This condition can be eliminated only by thoroughly rinsing out the engine. To avoid this experience, allow the engine to cool to the point where the hands can be held on the engine very comfortably before trying to start it. Quick cooling can be effected by pumping fuel on the cylinder fins; be careful not to get any in the exhaust ports.

A stubborn engine is usually a result of too much oil in the base or the combustion chamber. If the base is clear, the engine will give a long burst of power and die out slowly if it fails to start.

When the base is filled with oil the engine will give a very short burst and stop abruptly when the excess oil blows up into the combustion chamber. When this occurs, rinse out the base with fuel and pour out through the bypass and exhaust ports and start the engine without choking.

This starting procedure and the various causes of trouble have been described in such careful detail for the benefit of American modelers who have had no previous experience with diesel engines.

Following closely the procedure outlined above for starting shows that the Mills diesels will start with the same ease as the average glow plug engine. Mills engines are available in this country through Polk's Model Craft Hobbies.

ENGINE DATA

Mills .75 cc.

Design Data. Bore: .33. Stroke: .52. Stroke bore ratio: 1.58. Displacement: .75 cc. (.045 cu. in.). Class: Half-A.

Performance. Weight: 1¾ oz. Propellers: 8½/3 wide blade wood—6,700 rpm; 7/4 wide blade wood—8,500 rpm; 7/4 plastic—8,200 rpm; 6/4 wide blade wood—11,800 rpm; 6/3 wood—12,000 rpm. Fuel: Mills Diesel Fuel. Manufacturer recommends 1 part #40 oil, 1 part diesel truck fuel, 1 part ether. Test run on 1 part #20 oil, 2 parts ether. Good results on Drone Fuel. Fuel level test: 8½" at 8,500 rpm.

Mills 1.3 cc. (Mark II)

Design Data. Bore: 13/32 in. Stroke: ⅝ in. Stroke bore ratio: 1.54. Displacement: 1.3 cc. (.08 cu. in.) Class: A.

Performance. Weight: 3½ oz. Propellers: 9/6 wide blade wood—5,900 rpm; 9/6 narrow blade wood—6,700 rpm; 8/6 narrow blade wood—8,200 rpm. 8/3½ wide blade wood—9,000 rpm; 7/6 wide blade wood—9,100 rpm; 7/4 plastic impregnated wood—11,000 rpm. Fuel: same as above. Fuel level test: 9" at 8,200 rpm.

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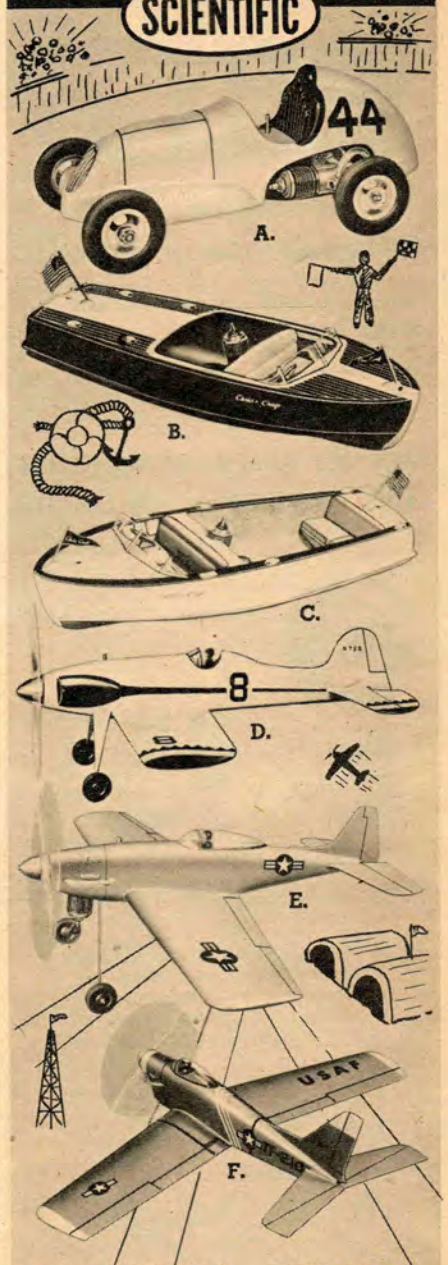

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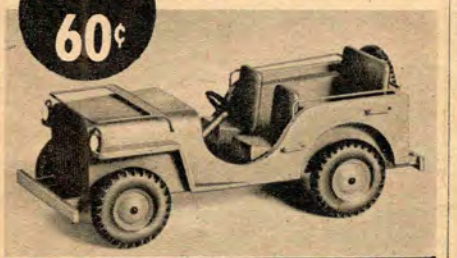

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Air Adventurers

(*Continued from page 10*)

local luncheon perhaps, a bright young boy or girl is introduced as having soloed through a scholarship from a leading merchant or club, those who are meeting can see that they have done something real and tangible for the future of this flying business.

If a department store gets back of the program, it can feature airplane models in its window displays and in its advertising. Or a newspaper might sponsor some scholarships as part of its good-will.

The whole plan may be tied into civil defense, to focus attention on preparedness against air attack through air power and through knowledge of aviation.

The need in aeromodeling is to advance those who want to go into full-scale flying and somehow bridge the gap from models to real planes, but at the same time offer a good program for those who want only to build and fly their models.

For either, or for those who have not made up their minds, the airport is the best place to learn. Many a prominent pilot began by watching at the airport; getting an airplane ride now and then; and finally graduating to the controls.

A good beginning for an Air Adventurers unit, whether its members are 'teen agers or older, is to get a CAA student pilot license for every one.

Also encourage each one to get a pilot's log book so airplane time can be recorded toward solo which usually takes about 8 hours of dual flight.

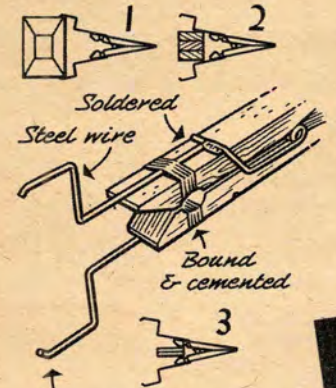
Though time with a flight instructor is required to check out, any pilot with a private license or higher can let you take the controls.

Also, you can work toward your written exam for private license, which is not unduly difficult. By learning a list of standard questions, some of which will be asked, you can pass the Federal Communications Commission exam for a 3rd Class Radiotelephone license which will permit you to use voice radio in the air.

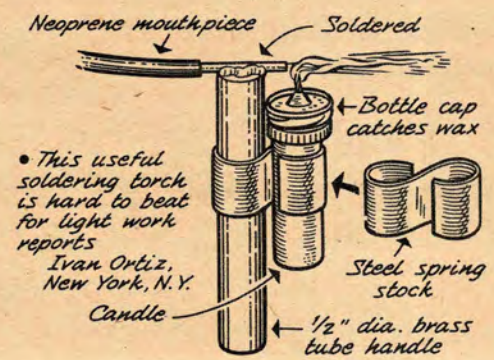
By setting such practical goals for A-A members, you can make your unit a success. Keeping a club busy and active is largely a matter of imagination.

SKETCH BOOK

• *Improvements on spring-type clothes pin make it triple-acting modelers' clamp ... Glenn Graham, Los Gatos, Calif.*

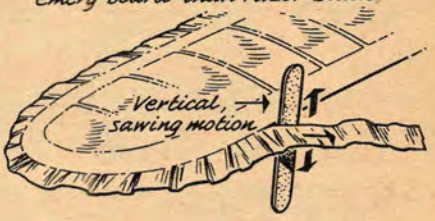


Particularly handy in fuselage assembly...



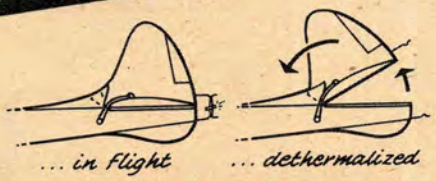
• *This useful soldering torch is hard to beat for light work reports Ivan Ortiz, New York, N.Y.*

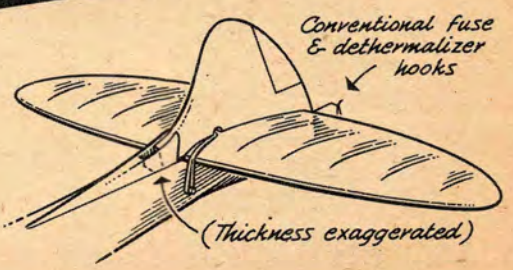
• *Trimming covering tissue, says Ward Morris, Brevard, N. C., is more easily done with emery board than razor blade.*



Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay $5 for each one accepted. Sorry, we cannot acknowledge or send back submissions.

• *C. H. Beiger, Chicago, Ill., devised slotted dorsal fin for guide and "stop" of dethermalizer ... made of plywood or balsa sheets.*





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Mills DIESEL

"**.08**" cu. inch

Specifications: Bore .33, stroke .52, Speed 8000 RPM (8x4 prop) Thrust 10 oz wt. 1¾ oz.

13.95 pp

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No more dives or costly crashes! Gives full control of plane in free flight, control-line or radio control. THROTTLE is standard on ".08".

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Features Patented **TRANSFER SYSTEM** the ingenious design assuring BETTER FUEL ATOMIZATION

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Bore .40, Stroke .64, Speed: 10000 RPM, H.P. 1/10, Thrust 20 oz. wt. 3½ oz.

MILLS DIESELS—precision-made with finest materials and perfect workmanship. Easy starting, under all conditions, years of dependable, exciting and reliable performance. EVERY ENGINE IS TEST RUN—AND GUARANTEED TO SATISFY YOU! You won't need a helper for control-line flight with MILLS: Start your engine, leave it ticking over, walk to center—take off and land at will! In team racing: Spot-land, refuel with engine idling & save precious time!

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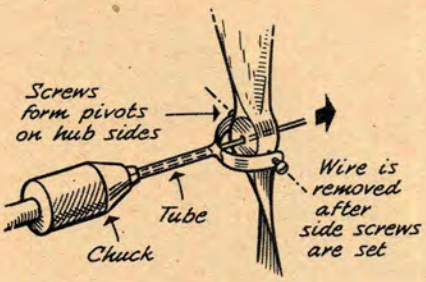
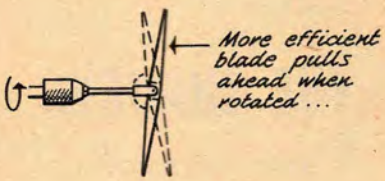
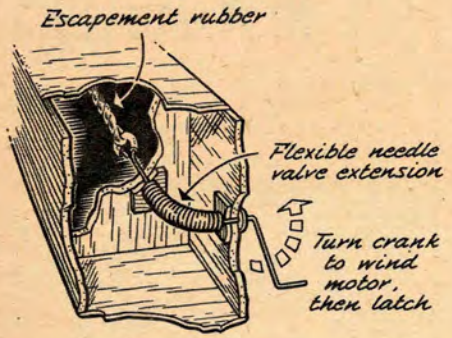
Dept. AT 152
New York 1, N. Y.

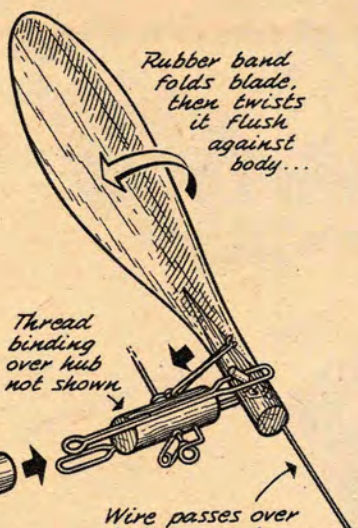
• *Mustafa K. Artam, Istanbul, Turkey, devised simple apparatus for checking relative thrust of propeller blades...*





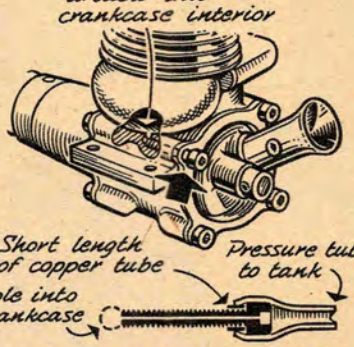


• *Clever device by Ernie Shailor, Detroit, Mich., permits easy external winding of radio model's escapement rubber motor. No dismantling or winder necessary...*


Rubber band folds blade, then twists it flush against body...
Thread binding over hub not shown
Hardwood insert in balsa blade
Bamboo dowel, forced fit
Wire passes over hub— prevents blades folding forward under power—

• *Rubber model prop-folding improvements by George Woolls, Bristol, England, assure flush folding, durability and increased efficiency— (Conventional tensioner)*

• *Australian Norman Bell, Victoria, submits simple idea to pressurize racing engines via hollow rear crankcase cover screw... (Does not affect rotor)*


Connecting hole drilled into crankcase interior
Short length of copper tube
Pressure tube to tank
Hole into crankcase
Drill oversize hole thru bolt, pass .016 wire thru, solder, withdraw wire before solder cools and hardens...

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MUTUAL BROADCASTING SYSTEM

Western Roundup

(*Continued from page 62*)

addendum on the end of the minutes—he inserts two which are very interesting. One being whether or not the setting up of standards for pull testing based on engine displacement classes in order to speed up processing might be offset by the possibility of flying below the safety requirements. The other, "If our dedication to our hobby is to encourage youth in building and flying model planes, are we not right in line in refusing to permit entering one model in two or more events?"

This is a question which is being tossed around all over the country and one which must be broken down into two parts, building and flying. The contest board of the Academy did not think it right to allow one rubber model to be entered in both the unlimited and Wakefield events even though it is highly possible for this one model to meet both requirements. This is good, since it tends to make a more active builder out of the modeler. On the other hand, the rather common practice of changing motors etc. in a gas model to make it eligible for up to five events certainly makes for more active flying.

It doesn't seem logical that the thing to do is to segregate the rubber models, then let the gas models run amock. True, there is a lot more work to getting a good rubber model flying and there are only two events, but why penalize the rubber builders while allowing the gas models a free field? This is like making a law that all Fords cannot go over fifteen miles an hour while all other types of cars are unlimited as to speed. Sounds silly when put in this fashion, doesn't it?

Still another endurance record has been set by a WAM member. Bernice Jaynes of the Sacramento Aero Aces Association set a record at the Hayward Flying Kilroys Meet. Bernice flew her Spitfire .60 glow plug job for 3 hours 29 minutes and 15 seconds. She turned in 1904 laps or 158.6 miles at an average speed of 45.48 mph. The model weighed 13 pounds at take-off and only 5¼ pounds when she landed. At this rate, if a pull test was made, she would have to pull 240 pounds to meet the requirements. Anyone got a truck to pull with?

The free flight side has also been most active with two annual contests. The Long

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Bluestreak .65	23.90	Ohlsson .29	13.95
Dart .03 (Diesel)	12.95	Ohlsson .33	13.95
Dooling .29	14.95	Ohlsson .60	13.95
Elf Single .099	12.50	O.K. Cub .039	4.95
Elf Twin .198	21.50	O.K. Cub .049	5.25
Elf Four .396	45.50	O.K. Cub .074	5.95
Elf Six .594	85.00	O.K. Cub .099	6.95
Forster G.29	14.25	O.K. Bantam .199	9.95
Forster G.31	14.25	O.K. Mohawk .29	9.95
Fox .29	14.95	O.K. Hothead .29	10.95
Fox Racing .29	16.50	O.K. Twin .120	55.00
Fox .35	14.95	Orwick .29	21.50
Fox .59	29.95	Orwick .64	27.50
Hornet .199A	23.90	Pal Twin .55	49.00
K&B Infant .020	4.95	Royal Spitfire .065	7.95
K&B Torp. Jnr. .035	4.95	Spitfire .645	24.95
K&B Torpedo .049	5.95	Spitzy .045	5.45
		Super Cyclone .604	12.95
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Beach Thunderbugs held theirs on a very nice field close to the Naval Hospital.

Following along with other annuals there was a radio control event which proved to be very hard fought due to the limited time available to the contestants for their flights. Howard Bonner led Colby Evett by only 3½ points when the smoke had cleared, while Colby in turn was only four points in front of Don Brown. Some very fine flying by all concerned.

In the free flight events the usual high times were encountered. If one couldn't get over fifteen minutes for three flights he should have stayed at home.

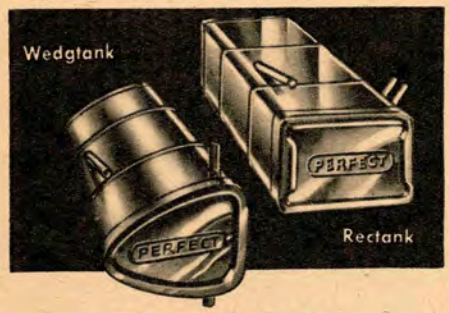
A very unusual day was encountered when the wind came up, then subsided so that many long flights were made after the usual eleven o'clock wind deadline. Lo Salisbury, the Wakefield man, garnered first in Half-A with 19:54.7. Frank Neuquist was first in A and high time for the day with 22:36.1. Jack Oxley was first in B with 20:46.8 while Chet Ogborn hauled down C with 19:58.4. And as per usual Toshi Matsuda won the beauty event with one of his "Zeeks."

Speaking of "Zeeks", Fran Uyemat and John Bollinger Jr. had some elongated Zeeks out at this meet. They had about 650 square inches in the wing due to an added 16 inches in the center section. The fuselages and stabs were proportionally longer. In flight these ships did not have the familiar twisting (up) flight to which we have become accustomed, but did fly in a fairly straight semi-flat climb which really gained altitude.

Fran finished second in B with his job, while John managed to hook into those rather numerous downdrafts which proved so plentiful.

We can still hear old Swaney (never have heard his first name) instructing an obvious newcomer to the game in the fine art of running an engine. While the youngster was turning down the needle valve and over the noise of the Cub .09: "More, more, more—Yeh, yeh, yeh, that's it, let her go." P.S.: the ship went up and out.

It was also at this contest that we observed what was the first true spin that these old eyes have ever witnessed. Wally Short launched his Half-A job, which proceeded to start in one of those rolling vertical climbs so prevalent in ships with large dihedral and small rudders. After rolling to the right the ship suddenly rolled to the left into a very flat spin. The engine con-



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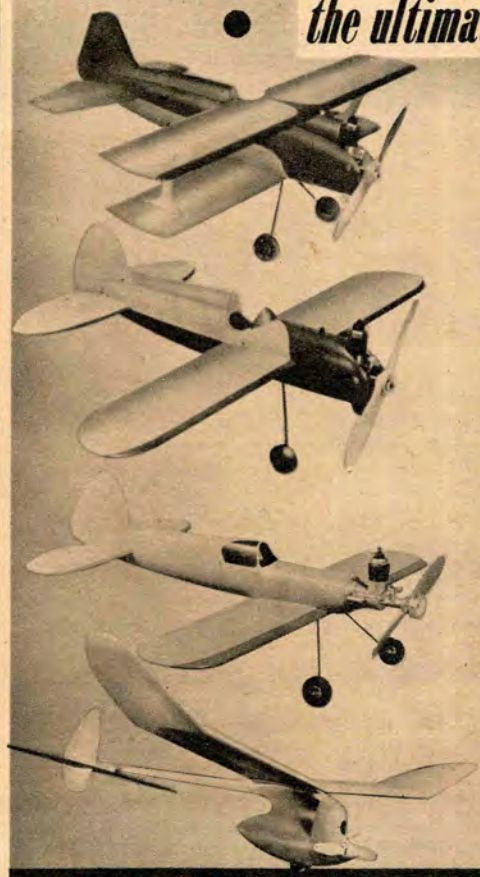

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tinued to run for about ten more seconds, then even when it stopped the ship continued in the spin until the plane hit the ground. A true spin. On the next flight with no adjustments the ship flew perfectly.

For all those who have been wondering who built that beautiful geodetic wing and tail pictured some time ago, Don Wildon of the San Berdoo Flying Wheels was responsible. Don says that it isn't practicable though, since the strength to warping was not sufficient.

Wally Short after many valiant attempts walked off with Open Sweepstakes, while that up-and-coming youngster Gene Huston triumphed over a field of top notch junior flyers to win in this division.

Up in Visalia we were treated to some very hot weather, 104 in the shade at 4:30 in the afternoon. They have a nice big field with plenty of thermals which proved a little different than most other California thermals due to their late activity. Majority of the fellows, wise, (so they thought), to the climate in this State, did most of their flying early, since they thought the wind would come up. It didn't, as attested by ten-minute flights with Half-A jobs just before the contest ended.

Quite a few lads tied into max on their first flights only to come croppers when their second and third flights didn't hook in.

All the atmosphere of a seven reeler was present when Swaney and Elmer Achterberg tied up for open sweepstakes while Swaney had still one flight left in Class B. He had more or less creamed his Hogan on an earlier attempt, so when it became necessary to put in that last flight, out came the masking tape and tube of glue. During launch a few tense moments while he wished off the model, after eighteen seconds some more feverish praying, after 19.8 seconds the engine quit. The glide looked good, the ship was in a thermal.

After four minutes the bottom dropped out and the fellows were still tied. Since Swaney is about 5 foot 10 and weighs about 215 and Elmer about 5 foot 11 and 165, it didn't seem too practical to have a foot race, so-o-o the Visalia Club made the ultimate gesture, for there is really no fair way to run off such a tie, and awarded duplicate trophies to the two winners.

One of those very rare accidents happened at this contest when Fran Uyematsu's Mac .19 powered "Zeek" crashed through the canvas canopy over the recorder's desk and hit Keith Tucker in the head while he was bent over the tally sheet recording a flight. The resulting gash required four stitches to close but Keith seemed none the worse for wear when he showed up later at the contest and continued his job.

The Visalia Club is to be congratulated for putting on such a fine meet, just enough timers to keep ships flying and no long waits. The prizes were swell, especially the case of oil for your car, which the fellows snapped up in no time as they did the screw drivers and other accessories.

Gene Huston Jr. continued his winning ways to win Junior Sweepstakes while Homer Werts came up with his first Senior sweepstakes trophy.

Elmer Achterberg put on a very fine show soon after the contest got underway by posting three flights of between seven and eight minutes to total over 22 minutes for high time of the day. Some very fine consistent flying. You should have seen John Bollinger Jr. doing real fancy dodging when his eight-foot "King Zeek" turned tail on him and started chasing. Wally Short is hard at work trying to develop some softer asphalt so that his screaming models will not smash up much. Bill Daniels sure has a fancy take-off with that big Gool. Bill releases the ship from the wing, kicking up his right foot to clear that large tail when it moves forward.

The San Diego Aeroneers have launched a new program designed to develop the potential champions who invariably pop up with a little assistance. All contests in the future will have two divisions, beginners and advanced. In order to bring out and develop all types of models, anything goes as long as AMA rules are followed with a six minute maximum flight limit. Another thought which will be incorporated is the teaming of a beginner with an advanced flyer, with the times of the two flyers tabulated for final results.

In the first contest in these two divisions we found everything from hand launched gliders to eight foot sailplanes. Dick Sladek came up with his first win since he came out to California, beating out Charley Schoneman. In the beginners class, R. Childs flying a Berkeley Hogan took first, followed by Melvin Kennedy with his new type *Floater* with only two flights.

Hogans were so numerous that some one made the remark that the flying site should be renamed "Hogan Field," which in turn led to the observation that it seemed like everyone had a Hogan but Denny Davis, Denny flew a *Firebaby*. Denny, who has re-

(*Continued on page 78*)

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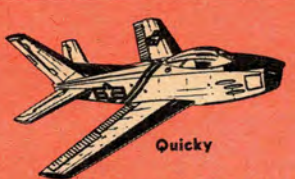
Guided Star is Consolidated Models' newest kit, prefabbed stunt job of 40 inch span. For .19 to .35 engines. 435 sq. in., flaps. Slot-and-tab fuselage.



Quicky

Cleveland Models' latest Quicky additions include the F-86 (above), Bonanza and Luscombe Sedan. 59c each. Non-jets include rubber.

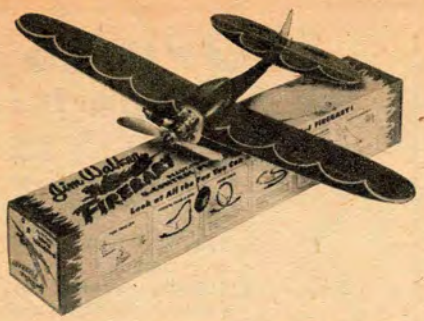
Super K.

Super Knockout for engines from .09 to .23 with span of 2 feet is Enterprise's newest. Wonder-Wing, shaped, hollow-fuse. H'ware & wheels. $3.50.

Prefabricated metal, plastic, die-cut parts are feature of Ideal Models' stagecoach, buckboard, covered-wagon kits. 11.5 in. long; scale ½"/ft. $1.50.

Brother!

Plasticote props are new Tornado line by Grish Brothers. Range from 5/2 to 9/7, priced from 15c to 35c. Plastic-coated wood, thin blades. Fuel proof.



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Ready-to-fly cabin plane of 2-foot span is the Rambler offered by Apex Novelties. Price, $1.98 ($2.25 by mail). Assembles in 2 minutes. Balsa.

Dumas Products is featuring this Chris-Craft 28 ft. semi-exact 1" to ft. boat kit. O&R engine installation shown on plans. Price'll be about $8.50.

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Add 25c for postage. Catalog—10c coin

MINIATURE AIRCRAFT CORP.

83 Low Terrace, Staten Island 1, N. Y.

(*Continued from page 75*)

turned to San Diego, said the Texas weather is too much for him.

The San Diego Airliners made a last-ditch stand and managed to keep the La Mesa Airfoilers from retaining permanent possession of the interclub trophy with a resounding 240 point lead. Charley Young caught the judges cold on his first flight to make high point for the day. Charley also won a 50 lap heat race and the 100 lap rat race with his K&B .19 powered Zilch.

Some new flyers made a very auspicious start in this contest in the form of Rick Lambert and his father, a doctor. When last seen flying about 9 months ago these two were hard pressed to keep a model in steady flight. At the contest they both very easily put their model through the pattern, finishing way up close to the top, while Rick finished second in the 50 lap heat race and second in the 100 lap rat race.

One observation made while we were designing a new fuselage for a towline glider was that the cross section rule is as antiquated as the horse and buggy. We found that to increase the fuselage from 50 to 60 inches long that we had to cram in 5½ more square inches of cross section. This seems just too much penalty to have passed on.

On full scale airplanes the only reason for cross section is equipment and strength; they find that when a longer fuselage is wanted one can make a fuselage proportionally smaller in section. Therefore why can't we either do away with the cross section rule or apply a straight proportion to it, say 20 or 25% so that added length will not bulge out those pleasing lines?

Now one that has been saved for last on purpose. Anything can and usually does happen out West but here is one which we believe tops them all. Frank Gross of the Lynwood Loopers has soldered 12 beer cans together, mounted two Mac .19's on them, and is flying the *Thing* every Sunday. Must have been good beer.

NEXT ISSUE!!!

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Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

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Q and A

(*Continued from page 9*)

Tank for CO_2 Engine . . . I would like to know how to get a tank for a Campus Bee CO_2 in case I order one without tank. How much?

Also, how would you refill it, with a capsule or do you have to have a special kind of pump or something?

Van Creech, Salemburg, N. C.

• As far as we know, the Campus engines are no longer available. However, the Buzz Bee, sold by A. H. C., is very similar and the tanks are interchangeable. It is quite possible you could get a tank from this source.

The tanks of Campus A-100 and Campus Bee, also Buzz Bee, are filled from a standard CO_2 capsule placed in a special holder. These holders were furnished with the engines and enabled the user to get 5-7 flights from the A-100 and 3-4 flights from cartridge with the Bee engines.

Dope and/or Stain . . . I am building a model of a 20 ft. Chris-Craft Cruiser. The finish is dark mahogany. How can I get the mirror-like finish of a doped model and still have the stained grain?

I have tried varnish stain with dope over it but the dope dissolves the stain. I have also tried the stain over filler but the stain does not dry smooth and will not sand.

Stan Hardin, Brevard, N. C.

• If your model is made of balsa, your best bet would be brown dope. Mix it with red and/or black to get the color you want. You might try coloring clear dope with household dye such as Tintex. Don't mix dope with varnish. Use either oil base (varnish) paints, or dopes throughout.

If your model is built of mahogany, don't try to stain it, just use clear dope over the wood. This will darken the wood considerably.

AA Version of Skyraider . . . You had plans for a Douglas Skyraider. I would like to build this plane, but since my income is very small (a small weekly allowance) I wouldn't be able to afford it or the motor. Could I have some suggestions as to how I could simplify construction and scale it down to AA size?

Robert Schwarz, New York, N. Y.

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While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this January 1952 index.

• You could build an AA version of the Skyraider AD-2 by doubling the size of the magazine plans. This will give you a model of 26 inches span. Use the bigger AA engines such as .074 or .099 for a model this size. Wings could be solid ¼ inch sheet, fuselage sides 1/16 inch sheet with formers spaced about 2 inches apart.

To Match Frequency . . . On present day model jets the valves and combustion chamber have a matched resonate frequency. Now then, the question I would like you to answer is: How is the matched resonate frequency obtained between the valves and the combustion chamber?

Paul Spangler, Jr., Wooster, Ohio

• Jet engines contain two vibrating components. One is a set of valves or reeds. If this front section is removed and air blown through the valves, they will vibrate like a mouth organ reed at a fixed pitch or frequency. Now if the reed valve is removed and the unit reassembled to the tail pipe, a second resonant unit is formed by the contained air column. Blowing through this pipe like a trumpet will produce a sound of very definite pitch. Comparing the pitch of these two individual notes will indicate whether the frequencies are matched.

The frequency between the two units can be matched by changing either one. The air column frequency is determined by the length of the pipe, being lower for a longer pipe. This cannot be easily changed on a model jet once it has been built. The frequency of the valve is controlled by its length, and stiffness of the spring action. Removing weight from the end of the valve by filing it thinner or clipping excess material from the edge will increase the frequency. File the heel (near the attaching point) of the reed valve thinner or narrower to reduce the spring action and lower the frequency. This should be done on each reed, one at a time.

This procedure is not recommended on a jet that runs, but would be interesting to try on an old clunker.

Will .29 Take 4-lb. Job? . . . Could you tell me whether or not my Pierce .29 would take a giant seaplane weighing approx. 4 lbs? It has almost the power of a .49 engine.

Richard Hill, Beverly Hills, Calif.

• Your .29 engine should fly a 4 lb. model easily. You won't get a screaming contest climb, but adjusting and trimming won't be as difficult either. Radio control ships of 6 ft. span weighing nearly 5 lbs. are being flown today with .23 and .29 engines.

Dope Can

(*Continued from page* 56)

years spare building time by Sgt. Dana P. Wilkenson, Holliston, Mass., and T/Sgt. John H. Gee, Medford, Ore.; an F-82 by Sgt. Jack E. Cottrill, Sterling, Colo.; and a Polish fighter by Cpl. Robert Hackley, Stockton, Cal. Cpl. Fitzgerald won the scale flying with a beautifully detailed S.E.-5. S/Sgt. Replogle did 75 mph with his B-26 full power, 59 mph on a single engine.

Strictly Personal. Detailed plans needed with photos, clippings of scale markings, etc., of F-51, F8F, F2G and P-47 by Carl Lassalle, 158 Charlotte St., Port-of-Spain, Trinidad, British West Indies.

"A problem of mine," says Philip Paul, Colombres 227, Lomas de Zamora, Buenos Aires, Argentina, "is locating someone out in California. At the 4th Plymouth Inter-

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nationals I saw a big 5.5 ft. stunt ship, powered by an ignition Orwick. This ship looked like a larger version of the old Madman. The plane had an orange and black checked paint job. As I remember, the boy who flew this ship started the combat event by challenging the boys from Texas. It seems he didn't want to take the plane back to California with him. If you have any idea of whom I am speaking I would appreciate his address since I want to build the plane."

Will swap good brand of English diesel for Dooling .29. Lars Howing, Rortaggarvagen 34, Bromma, Sweden.

Note to our overseas friends: when you write us, some place in your letter print your complete name and address. It'll sure speed up matters. Also, try to use stamps on your letters that are special issues so that your American recipient will have an unusual stamp to keep and remember you by rather than just one of the ordinary "run-of-the-mill" stamps. Ditto, U.S.'ers.

R/C scaler, F/F scaler, some control line interest, 26, wants to correspond with like-minded US'er: W. D. E. Millman, 26A Ravenswood Rd., Redland, Bristol, England.

Call for scale drawings of the old Piper Cub—the first and the prettiest. Also wants drawings of Reginald Denny's Dennyplane. R. W. Pascoe, 100 Fergusen St., Palmerston, North, New Zealand.

Isolated modeler, very happy to correspond: John Sheppard, Fairua, Via Waihi, North Island, New Zealand.

In answer to queries: plans and instructions for building the full-size Flying Flea (man carrier, not the model) available from Sunrise Co., Box 173a, Hawthorne, N. J. Write for data.

Looking for World War I and II air photos is Paul Heldebrecht, 800 Fremont, Manhattan, Kans.

Half-A and A control line fan looking for pen pal 14 to 16: Henry Del Nero, Avondale, Pa.

Maurice Brooks, 7735 Kingsley, Houston 17, Texas, has Comet Sailplane kit (#T13) but no plans. Wants to borrow same, guarantees no new pinholes, tears or spots with glue embedded in the paper.

Morton Schermerhorn, First St., Chatham, N. Y., bought Torpedo Special in '48, now needs connecting rod. Can anybody be of help?

Jackie O'Roake, Box 152, Woodston, Kan., has "partly used" Madewell .49. If interested, write him.

Danish enthusiast wants to work out swap deal for a glow plug engine in .29 to .60 size. Hakon Arnesen, Sovej 92, Nykobing F., Denmark.

Replacements parts for Fleetwood 60 requested by Marine S/Sgt. George C. Ribley, Elect. Div., MCSD, Camp Lejeune, N. C.

Club Chatter. The Syracuse, N. Y., Controliners' Club have tied up with local Plymouth dealers and will soon adopt the Plymouth Aero League designation. Plans in works call for a 7-circle C/L and large F/F permanent flying field. A special area in a dealer's garage has been set aside for the club; workbenches and a model program for youngsters are both abuilding. Local enthusiasts can contact Herb Sennertt at 814 Montrose Avenue for all the dope.

As the feature act of the National Kids' Day show sponsored by the Kiwanis Club of El Monte, Calif., the members of the FAST Club put on an exhibition of team racing and stunt flying which left the audience of 900 youngsters wide-eyed with wonder. The skill and precision shown by the members of the Club surprised many of the Kiwanis present, most of them never having seen model air experts in action before.

FAST Club members who gave of their time and talent were Keith Storey, Les McBrayer, Jerry Gaston, Granger Williams and Lawrence Williams. Bob Swenson of Santa Ana flew a stunt ship through a near perfect pattern to demonstrate that type of modeling.

Framingham, Mass., now boasts a 30-man club, the Pylons. Most of the group's activities is confined to stunt work. The boys fly every Sunday morning and on alternate Wednesday evenings. Bruno A. Gentili, Pylon's pres., can be contacted at 67 Fay Road.

Aerobats Club of Puerto Rico is registered under the laws of the country and invites all active modelers down there to join in the activities. Flying is conducted every Saturday and Sunday afternoon at the University of Puerto Rico baseball park. Details on the organization available from Box 306, Rio Piedras, Puerto Rico.

A new club is forming in Easton, Pa., members already have the help of the local airport operator. Name: Model Airplane Doctors. Contact: Joseph Groman, Jr., RD #2.

Writes Robert Edwards of Milwaukee, Wis.: "S.O.S. Hey fellas! How's about some help? The flying fiends around our high school have just organized a 'fly-guys' club and would like to profit by other people's mistakes. So if some of you 'prop-twisters' and 'balsa butchers' would write and give us some 'clean dope' on this club running stuff, we could start two-cycling right off." Bob's at 842 North 18th St.

The Victoria, B. C., Canada, Model Airplane League is still very active, says A. C. George, its president. It has its own meeting place and interested prospects can contact D. P. Collis at 648 Cormorant St., for all the dope.

Change in name: Aero Aces instead of Flying Lions of Bayshore, L. I., N. Y. J. A. Wilson is still the man to see at 33 Maddox Ave., Islip, Long Island, N. Y.

PHOTO CREDIT LIST

Page 20—Top: Cdr. Larry Booda; all others: S. C. Smith.
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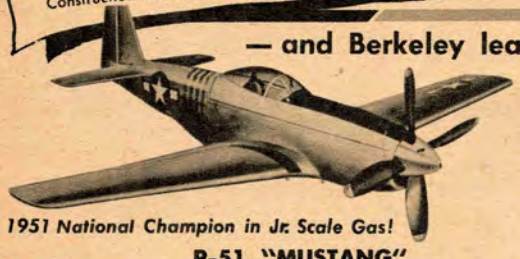

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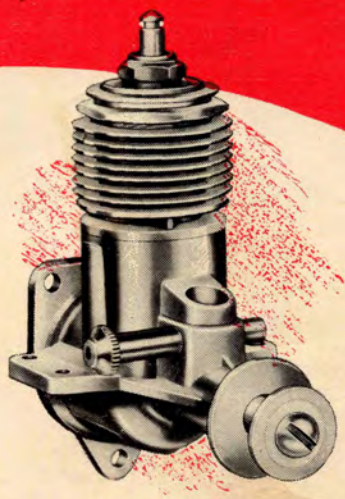

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